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Intrapersonal Variables Associated With Academic Adjustment In College Students

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CHAPTER 1

Introduction

Emerging Adulthood

Emerging adulthood has been identified as the developmental period spanning from the late teens through the twenties, with a stronger focus on ages ranging from 18 to 25 (Arnett, 2000). According to Arnett (2000), this period is theoretically and empirically distinct from previously studied developmental stages pertaining to this age range, including Erikson's (1950) theorized stages, specifically adolescence and young adulthood. Five distinct features characterize this period of development, including that it is the "age of identity explorations", the "age of instability", the "self-focused age", the "age of feeling in-between", and the "age of possibilities" (Arnett, 2004, p.8). Individuals who fall in the category of emerging adulthood may no longer be limited by the typical constraints an adolescent faces (i.e., parental control, being classified as a minor, etc.), but are also not yet bound by the responsibilities of adulthood (i.e., maintaining a full time job, paying rent, etc.).

The percentage of emerging adults attending college continues to be on the rise. According to the National Center for Education Statistics (2011), the percentage of 18- to 24-year-olds enrolled in college rose from 36 percent in 1999 to 41 percent in 2009. A college or university setting is a prime backdrop for this developmental stage, as it allows for, and in some cases promotes, a variety of opportunities for identity exploration, focus on the self, and the pursuit of different possibilities. Pursuing ones education in a college or university setting can be a vitalizing experience, but also a stressful and challenging one as well. Existing research has demonstrated that the college experience entails a great deal of adjustment to a range of social, intrapersonal, and academic demands. Although the percentage of people choosing to enter

college is high, drop out rates are also high. Why is it that some students are able to adapt and progress through college successfully, fulfilling their academic goals, while others struggle, become overwhelmed, and in the end fail to meet their goals? Research shows that students who utilize a range of social, personal and academic skills tend to demonstrate better adjustment to college than those who do not (Tinto, 1982), and ultimately have a better success rate of accomplishing their academic goals. For this reason, academic adjustment in college students is a significant area of study.

Motivation as a Predictor of Academic Success

The concept of motivation has been a popular area of research in educational contexts. One commonly studied theory of motivation is self-determination theory (SDT) (Deci & Ryan, 1985, 1991), which postulates that behavior can be intrinsically motivated, extrinsically motivated, or amotivated. These motivational orientations have been linked to a variety of academic and intrapersonal outcomes. Intrinsic motivation has been positively associated with the quality of learning (Ryan & Deci, 2000a), lower dropout rates (Vallerand et al., 1997), and greater academic persistence (Hardre & Reeve, 2003). Additionally, intrinsic motivation has been shown to be linked to one's self-esteem (Deci & Ryan, 1995), as well as general overall well being (Ryan et al., 1995). Extrinsic motivation and amotivation, conversely, have been shown to be associated with impaired learning, and poorer academic performance and educational outcomes (Benware & Deci, 1984). Where an individual falls on the intrinsic, extrinsic and amotivation continuum ultimately determines the extent of his/her self-determination.

Self-Determination Theory

Self-determination theory (SDT) is an organismic theory of human motivation. This type

of theory views the organism (or individual) as active, that is, as "being volitional and initiating behaviors" (Deci & Ryan, 1985). It assumes that human beings act on their internal and external environments to be effective and to satisfy the full range of their needs (Deci & Ryan, 1985). According to this theory, people can either be motivated and proactive in achieving their goals, or passive and non-participative in their own lives. There are endless examples in the world of people who are inspired, energized, and who extend themselves to broaden their experiences. On the other hand, there are also plenty of people who reject growth and responsibility and are uninterested in broadening their experiences. SDT considers the person's environment, particularly one's social-contextual conditions, as playing a major role in the internalization process of motivation. Therefore, one's environment can either foster or hinder self-motivation and the development of psychological well-being. According to Ryan and Deci (2000b, p. 68), "…social contexts catalyze both within-and between person differences in motivation and personal growth, resulting in people being more self-motivated, energized, and integrated…" More specifically, factors have been considered that reinforce rather than sabotage intrinsic motivation, self-regulation, and well-being. Within their research, Ryan and Deci (2002) have identified three innate psychological needs that, when met, have been shown to strengthen self-motivation and mental health. These innate factors, referred to as "basic psychological needs", include competence, autonomy, and relatedness (Ryan & Deci, 2002). Competence refers to feeling effective and confident in the action or activity. Autonomy refers to the individual feeling they are the source of their own behavior, that he/she is doing the action or activity because he/she wants to. Finally, relatedness refers to feeling connected to others, as well as supported by others. When an individual's environment is so that his/her efforts and pursuits are encouraged, supported, and validated, for example by one's parents, the individual's

psychological needs for feeling competent, autonomous, and the ability to relate are more likely to be met. Whereas when one's efforts are not supported and validated and the individual is subjected to controlling conditions (i.e., the individual is engaging in a task because he feels that he either "has to" or "should" and not because he wants to), this individual's psychological needs will likely result in being unmet. When these needs have been impeded, it leads to both decreased motivation and decreased overall wellness. The difference between these two outcomes shapes the degree of an individual's self-determination. Research has shown that parent's who are more autonomy-supportive, as opposed to more controlling, have children who tend to be more intrinsically motivated (Grolnick et al., 1997). Additional studies have further demonstrated that students of teachers who are more autonomy supportive tend to exhibit greater intrinsic motivation (Deci et al., 1981; Flink et al., 1990), and better conceptual understanding (Boggiano et al., 1993). It is important to note that SDT does not concern itself with what causes intrinsic motivation; rather, "…it examines the conditions that elicit and sustain, versus subdue and diminish, this innate propensity" (Ryan & Deci, 2000b, p. 70).

In addition to intrinsic motivation, there are other types of motivation. People can be motivated because they truly enjoy or value an activity, but can also be motivated by "strong external coercion" (Ryan & Deci, 2000b, pg 69). For example, emerging adults attending college may be internally motivated to further their education, or may only be doing it because their parents expect them to. Some researchers view extrinsic motivation as being non-autonomous; however, SDT holds the view that it is possible to be "autonomously extrinsically motivated" and that internalized extrinsic motivation and intrinsic motivation in actuality share similar qualities (Ryan & Deci, 2002). According to SDT, when an external demand (i.e., parental expectation) is imposed on an individual, it is possible for the individual to identify with

and internalize (or integrate) the behavior, resulting in a more self-determined form of extrinsic motivation. This occurs when there is a conscious valuing of a behavioral goal and acceptance of the behavior as personally important to the individual (Ryan & Deci, 2002). An example of this is when an individual who has continuously received the message from his/her parent(s) that going to college is important, identifies with and internalizes this goal because it coincides with his/her own values and personal goals. When it is extrinsic motivation at work, a person's "behavior can range from amotivation or unwillingness, to passive compliance, to active personal commitment" (Ryan & Deci, 2000b, p. 71). Motivation (self-determination), whether intrinsic or extrinsic, is something college students must possess in order to successfully achieve their academic goals.

Academic Adjustment

Academic adjustment, a component typically measured in studying college adjustment, is defined as students' success in coping with the educational demands of the college experience (Baker & Siryk, 1989). A strong positive link has been established in the literature between one's motivational orientation and overall college adjustment, specifically academic and personal/emotional adjustment. For example, educational benefits shown by autonomously-motivated students compared to control-motivated students include higher academic achievement (Miserandino, 1996), higher perceived competence (Ryan & Grolnick, 1986), more positive emotionality (Ryan & Connell, 1989), and higher rates of retention (Vallerand & Bissonette, 1992). However, is being self-determined enough to thrive academically? The correlations between self-determination and academic adjustment are low to moderate, suggesting that there are other factors playing a role in this relationship. Researchers have attempted to hone in on what either helps or hinders college students in achieving academic

success by considering a variety of both individual (self-esteem, personality characteristics, level of self-determination/motivation, etc.) and contextual (peer influence, parental support, etc.) factors. The purpose of the current study is to examine intrapersonal factors that may moderate, or interact with, academic motivation (self-determination) to predict academic adjustment. The proposed variables are alcohol use, procrastination, perfectionism, perceived level of stress, and coping style. These intrapersonal factors have been considered in prior research, both individually and in combination with other factors (individual and contextual), and have been shown in the literature to be most consistently associated with positive academic achievement outcomes. Additionally, taking into account the age group that is being studied, it is common for individuals in the stage of emerging adulthood to be confronted with many of the above factors during this developmental period. Because this period is considered to be the age of identity exploration and instability, it is not unusual for an individual to exercise one's choice, for example, to experiment with alcohol or procrastinate on completing a task. Furthermore, it is during this developmental period that individuals are exposed to a greater variety of experiences and situations in which intrapersonal characteristics such as perfectionism, style of coping, and how one perceives stress, are reinforced within the individual. Lastly, intrapersonal factors were chosen to be the focus of this study because although it is impossible to ignore the impact of interpersonal/contextual variables (peer influence, parental support, etc.,) on academic outcomes, the self is critical to success. These factors not only make intuitive sense to explore for their moderating capacity, but there is also clear empirical support for their inclusion in the proposed study.

Intrapersonal Factors Predicting Academic Adjustment

As mentioned above, the primary aim of this study is to magnify the area of self by

considering a range of intrapersonal factors and examine how these factors influence academic adjustment. In this section, the intrapersonal factors (in addition to academic motivation) of alcohol use, procrastination, perfectionism, perceived level of stress, and coping style are defined. How these factors have been found to be associated with academic adjustment in college-aged students is also discussed.

Alcohol Use. The typical college experience offers a broad variety of situations and events in which individuals are exposed to alcohol. Emerging adulthood is believed to be the peak age period for the exploration of many risk taking behaviors, including binge drinking, illegal drug use, and risky sexual behavior (Arnett, 2005). Prior research has demonstrated extensive alcohol use on college campuses (Johnston et al., 2009), which has been predominantly shown in those students 18- to 24-years of age (Hingson et al., 2002). According to a comprehensive study by The National Center on Addiction and Substance Abuse at Columbia University (2007), 49% of full time college students binge drink. The study also found that 22.9 percent met the criteria for abuse and dependence. Such high prevalence of alcohol use among college students indisputably impacts one's ability to perform at their full academic potential. Previous research findings have shown alcohol use to be associated with poor academic performance (Perkins, 2002), and lower grade-point averages (Singleton, 2007). Additionally, alcohol use has been associated with those individuals who posses a controlled orientation style (non-self-determined or externally motivated), where behavior tends to be focused more on extrinsic goals and internalized pressures (Neighbors et al., 2004). This relationship will be of particular interest in the current study, as each variable will be assessed in relation to the impact on academic adjustment, both individually and together.

Procrastination. Academic procrastination is typically defined as an irrational tendency to delay starting or completing an academic task, and often, as a result, creates emotional discomfort (Lay & Schouwenburg, 1993). Students may have the intention to perform an academic activity within the desired or expected time frame, but fail to do so (Senecal et al., 1995). It has been demonstrated in the literature that procrastination interferes with a wide range of academic outcomes. Academic procrastination has been found to have negative consequences for learning and achievement (Clark & Hill, 1994; Harriott & Ferrari, 1996). Additionally, several studies have found a moderate to strong negative correlation between procrastination and academic performance (Steel et al., 2001; Jackson et al., 2003; Van Eerde, 2003).

This behavior affects a large percentage of students and is considered fairly common in a college setting. One study found that more than 70% of college students reported procrastinating regularly, and that about 20% do it habitually (Schouwenburg, 1995). A more recent study reported that of the sample of students surveyed, 80%-95% of college students engage in procrastination (O'Brien, 2000).

Perfectionism. Perfectionism has been shown to impact academic performance and is an important factor to consider. Perfectionism is defined as having high, and sometimes unrealistic, standards for performance, coupled with tough self-criticism (Blatt, 1995). Viewed as a multidimensional construct in the literature, studies on perfectionism indicate that there are both positive and negative aspects of perfectionism (Frost et al., 1993; Slaney et al., 1995). More specifically, two types of perfectionism have been identified, including adaptive (positive) perfectionism and maladaptive (negative) perfectionism. Adaptive perfectionism, characterized by having high personal standards in the absence of excessive self-criticism, has been shown to be positively associated with both academic achievement and academic adjustment (Stoeber &

Otto, 2006). Conversely, maladaptive perfectionism, characterized by self-doubt and excessive worry about making mistakes, has been linked to significantly lower GPA (Accordino et al, 2000) and poor academic performance (Rice & Slaney, 2002). Furthermore, research on perfectionism has demonstrated that despite high standards for excellence, maladaptive perfectionists tend to be less academically integrated (Rice & Mirzadeh, 2000). On the other hand, adaptive perfectionists', who also hold themselves to high standards, have been found to be better academically integrated than maladaptive perfectionists (Rice & Mirzadeh, 2000).

Perceived level of stress. College students are particularly prone to stress due to the transitional nature of attending college. According to Compas et al. (1986), attending college has been reported to be more stressful than students anticipate. In fact, undergraduate students reported that stress was the most common health factor impacting their academic performance (American College Health Association, 2006). In a study investigating academic stressors on college campuses, students' identified factors such as time demands, grades, and worry about their futures as sources of stress (Archer & Lamnin, 1985). According to the American College Health Association's National College Health Assessment (2009), stress is considered as being one of the top 5 threats to academic performance. Academic stress in particular has been identified as an important factor in college student adjustment (Gall et al., 2000), and has been shown to be inversely related to academic performance in undergraduate students (Felsten & Wilcox, 1992; Pritchard & Wilson, 2003). Wintre and Yaffe (2000) found that students who reported increased stress were associated with decreased overall adjustment and lower grade point averages (GPA). Stress has also been identified as a factor that has the potential to negatively affect both learning (Hockey, 1979) and persistence in college students (Perrine, 1998).

Coping style. Many students cope with the demands of college quite well and are even motivated by them, while others fail to cope and consequently develop maladaptive behaviors (i.e., alcohol or drug use, skipping classes). Coping has been defined as the behavioral and cognitive processes used when individuals are attempting to deal with the demands of a stressful situation (Lazarus & Folkman, 1984; Aldwin & Revenson, 1987). Two general coping styles have been identified in the literature, active and avoidant. Active coping encompasses two approaches, including problem-solving strategies and emotion-focused strategies. Problem solving involves the attempt to actively alleviate stressful circumstances; while emotion-focused strategies focus more toward regulating, or coping with, the emotional consequences associated with a stressful event. While active coping has to do with the initiative to change or deal with a stressor, avoidant coping is the opposite. With avoidant coping, the focus is on evading the stressor by either engaging in activities that are perceived to alleviate stress (i.e., alcohol use), or withdrawing from the stressor by way of behavioral or mental disengagement (i.e., discontinued attempts at goal attainment) (Carver et al., 1989). Prior research has shown that those individuals who have a more avoidant coping style are at a greater disadvantage when confronted with stressors such as adjusting to college (Aspinwall & Taylor, 1992). Persistent use of avoidant coping strategies has also been linked to psychological distress (Rohde et al., 1990), which certainly affects one's motivation to keep up with the rigorous demands of the academic world. In contrast, greater use of active coping strategies and the nonuse of avoidance coping have been associated with positive college adjustment and performance (Aspinwall & Taylor, 1992), as well as greater retention among college students (Shields, 2001). Coping style undoubtedly has an impact on an individual's ability to perform in an academic setting and is an essential factor to consider when studying academic adjustment.

Limitations of Past Research and Purpose of This Study

With college attendance on the rise, it is important to explain the variance in successful academic adjustment. As previously mentioned, individual factors have been studied one or two at a time or in combination with other interpersonal/external factors. The purpose of this study is to magnify the area of self by considering a variety of intrapersonal factors to examine how these factors may influence academic achievement. The goal is to examine both their combined and unique contributions.

Research Questions

Based on the above literature review and perceived limitations of prior research, the following research questions were posed:

1. How strongly is academic motivation (self-determination) correlated with academic adjustment in this sample?
2. How well do intrapersonal factors (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) explain a statistically significant proportion of variance in academic adjustment? Specifically, do students who consume alcohol, procrastinate, are perfectionists (maladaptive), perceive high stress, and have an avoidant coping style experience less successful academic adjustment?
3. What is the additive contribution of various risk and protective factors (intrapersonal factors) in explaining variance in academic adjustment above and beyond academic motivation (self-determination)?
4. Do the intrapersonal factors (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) moderate the relations between academic motivation (self-determination) and academic adjustment?

CHAPTER 2

Literature Review

Overview

As individuals reach the end of their adolescent years and enter the developmental period of emerging adulthood, they are faced with a variety of choices and opportunities for novel experiences. One common choice for many individuals in this developmental period is that of attending college. As an emerging adult and college student, encountering stimulating experiences, as well as stressful and challenging ones, is not at all uncommon. Research has demonstrated that the college experience entails a great deal of adjustment to a range of social, intrapersonal, and academic demands. The pressure of keeping up academically is something all college students will encounter. Many different factors play a role in how successful one is in achieving their academic goals. The concept of motivation has been a widely studied factor in educational contexts. One way to examine motivation in an academic setting is through Deci and Ryan's self-determination theory (SDT), which postulates that behavior can be intrinsically motivated, extrinsically motivated, or amotivated. These motivational orientations have been linked to a variety of academic and intrapersonal outcomes. Along with academic motivation (self-determination), the intrapersonal factors that will be examined in this study include alcohol use, procrastination, perfectionism, perceived level of stress, and coping style.

Emerging Adulthood

According to Arnett (2000), the years from the late teens through the twenties (with a focus on ages 18 to 25) are years of profound change and importance. This developmental period referred to as emerging adulthood, is more than just a brief period of transition into adult roles. Instead it is a distinct period characterized by change and exploration of possible life

directions in areas such as love, work, and worldviews (Arnett, 2000). Especially within industrialized societies, this stage of life has changed over the last several decades with individuals entering marriage and having children later in life in order to pursue longer periods of post-secondary education and different career options (Arnett, 2000).

Arnett (2004) proposed 5 distinct features that make emerging adulthood distinct, including that "it is the age of identity explorations", "it is the age of instability", "it is the self-focused age", "it is the age of feeling "in-between", and "it is the age of possibilities". Emerging adults have more time to explore their options and take advantage of not having to commit to adult responsibilities, while having more freedom than an adolescent (Arnett, 2000). Research has validated that during this stage of life there is a subjective sense that the individual has left adolescence but not completely entered adulthood. According to Arnett (2000), emerging adulthood is the most heterogeneous period of life because it is the least structured. In other words, it is a time in one's life where the opportunity for identity exploration is greater than any other developmental period of the life span. An individual's demographic status is also very difficult to predict (i.e., residential status, school, etc.). Emerging adults have the highest rates of residential change of any age group. For example beginning at age 18, some emerging adults go away to college and become full-time students, some move out and simply begin working without attending college the first year or possibly ever, and some choose to stay at home and either begin or continue working and attend college on a part-time or full-time basis.

Emerging adulthood is also a peak time for engaging in risk taking behaviors such as alcohol or drug use, skipping class, unprotected sex, etc. (Arnett, 2000). This is likely due to the desire to obtain a wide range of experiences before settling down into adult life, and is part of identity exploration. The concept of sensation seeking plays a role here, which is the desire for

novel and intense experiences. Risk taking behaviors during emerging adulthood can also be pursued more freely when compared to adolescence (less parental monitoring) and young adulthood (less constrained by roles). As responsibilities increase however, risky behaviors decrease. According to Arnett (2000), the characteristics that matter most to emerging adults in their subjective sense of attaining adulthood are not demographic transitions but individualistic qualities of character (i.e. being able to accept responsibility for one's self, making decisions independently, and feeling financially stable). With these characteristics, there is an emphasis on becoming a self-sufficient person, and when these 3 goals have been met the individual typically moves on from the developmental stage of emerging adulthood, to the next stage of life.

Emerging Adulthood and College Students

More and more emerging adults are making the decision to continue on to college after completing high school. According to Arnett (2004), college has become an experience shared by the great majority of emerging adults. In fact, this trend is a significant contributor to what makes up the distinct period of emerging adulthood. A college or university is an ideal setting to experience the characteristics of this developmental period, as it allows for the independent exploration of oneself, including identity, career, love, and worldviews. For example, college students can explore career interests by taking various courses before committing to a major/career path. They are also surrounded by fellow students who are mostly emerging adults, as well as mostly unmarried, which allows for various opportunities for the exploration of love and relationships (Arnett, 2004).

Taking the initiative to attend college however, does not guarantee academic success. Most emerging adults recognize that in order to get a good job these days you need a college education, however about 25% of will drop out the fist year (Arnett, 2004). This has to do with

the fact that individuals enter college for various reasons, but not always with the clearest of intentions. For example, they may have felt peer pressure to go to college because all of their friends were going, and they felt that it was what they "should do". Many times individuals are not prepared for the rigorous demands of college and cannot handle the academic pressure. This may be linked to the freedom and excitement that comes along with being a college student, which can make it difficult to remain focused on one's studies. According to Arnett (2004), subcultures exist within college settings that characterize the type of student one is. The four subcultures include collegiate (focus is more social (fraternities/sororities, sports) and academics come second), vocational (the goal is to obtain a degree and move on, and academics also come second), academic (focus is gaining knowledge, and expanding ideas and views, here academics are number one), and rebel (the goal is to learn but tend to be critical of the process, as well as the instructors). Heavier involvement in one of these four subcultures can have a significant effect on the outcome of ones college experience.

Overall, many factors can influence ones college experience and success outcome. However, a major component to personal and academic success lies within the individual him/herself, which dictates the behaviors and paths he/she chooses during the college experience. How motivated an individual is plays a major roll in the activities they choose to give their time and attention to, as well as how persistent they are in overcoming the challenges often associated with the college experience. Motivation is a widely studied concept in educational settings, and the type of motivation has been linked to a variety of academic outcomes and has a significant impact on academic success. Deci and Ryan's (1985, 1991) Self-Determination Theory (SDT) classifies motivation as being intrinsically motivated, extrinsically motivated, or amotivated.

Self-Determination Theory

Much of the earlier research on motivation assumed that people performed certain behaviors because they believed these behaviors would result in a desired goal or outcome. Based on this approach, two goals that are valued in a similar fashion and hold the same expectancies for achievement would result in the same quality of performance and emotional experience. This suggests, for example, that two individuals, who both value a college education and expect to graduate with a degree, will both perform similarly and have comparable affective experiences throughout the process. As this area of research continued to expand, the focus turned to differentiating between types of goals and outcomes. For example, researchers have contrasted approach goals with avoidance goals (Elliot & Church, 1997), demonstrating that different types of goals tend to result in differing emotional and behavioral outcomes. Self-determination theory (SDT) also distinguishes the concept of goal-directed behavior but with a different approach. According to Deci and Ryan (2000), self-determination theory

> …differentiates the content of goals or outcomes and the regulatory processes through which the outcomes are pursued, making predictions for different contents and for different processes. Further, it uses the concept of innate psychological needs as the basis for integrating the differentiations of goal contents and regulatory processes and the predictions that resulted from those differentiations (p. 227).

More specifically, the three basic innate psychological needs for autonomy, competence, and relatedness, "…are considered essential for understanding the "what" (i.e., content) and "why" (i.e., process) of goal pursuits" (Deci & Ryan, 2000, p. 228).

According to Ryan and Deci (2002), these three basic psychological needs (competence, relatedness, and autonomy) are essential for healthy development. Social environments that allow satisfaction of the three basic needs are predicted to support such healthy functioning and will promote positive psychological consequences and optimal development, whereas factors associated with need thwarting or conflict are predicted to be antagonistic, and may lead to

maladaptive coping patterns and adjustment outcomes (Ryan & Deci, 2002). Additionally, SDT assumes that human beings are "growth-oriented organisms" who actively seek to participate in interesting activities, to have an effect on the environment around them, to pursue meaningful relationships/belong within social groups, and to integrate intra- and interpersonal experiences into a unified sense of self (Deci & Ryan, 2000). Competence refers to feeling effective, or feeling a sense of mastery, in one's interactions with the social environment (White, 1959). According to Ryan and Deci (2002), the need for competence leads people to seek out challenges within their capacity to both maintain and enhance those skills. Competence is not considered a skill one can attain. It is more so a sense of confidence that is felt within one's actions. Relatedness refers to feeling connected to others, experiencing a sense of mutual respect and belongingness with others. According to Ryan and Deci (2002), the need to feel connected with and accepted by others is not concerned with attaining a certain outcome or status, it has to do with the psychological sense of being with others in secure communion. Lastly, autonomy refers to being the perceived origin or source or one's behavior, rather than as a "pawn" controlled by outside forces (deCharms, 1968; Deci & Ryan, 1985). In other words, it has to do with acting from personal interest and integrated values. Autonomy is often confused with, or grouped together with, the concept of independence, which is defined as not relying on external sources or influences (Ryan & Deci, 2002). According to Ryan and Deci (2002), it is possible for an individual to autonomously enact values and behaviors influenced by others, if the individual also finds value in the behavior. For example, if a parent is expecting their son/daughter to go on to college, and he/she finds value in obtaining a college education, then the need for autonomy can still be fulfilled. It is important to note that there is a difference between satisfying these basic needs and satisfying one's motives. Ryan and Deci (2002) point out that it is possible for

an individual to have motives that can be detrimental to well-being if they interfere with people's autonomy and relatedness. Effectively achieving one's goals is not enough to ensure psychological well-being (Ryan & Deci, 2002).

Self-determination theory has evolved quite a bit over the course of its existence. This theory is currently comprised of four mini-theories, which are linked through the concept of the fulfillment of the three basic psychological needs (Ryan & Deci, 2002). The four mini-theories include *Cognitive evaluation theory*, which "…was formulated to describe the effects of social contexts on people's intrinsic motivation" (Ryan & Deci, 2002, p. 9), *Organismic integration theory*, which "…was formulated to explain the development and dynamics of extrinsic motivation" (Ryan & Deci, 2002, p. 9), *Causality orientations theory,* which "…was formulated to describe individual differences in people's tendencies to orient toward the social environment in ways that support their own autonomy, control their behavior, or are amotivating" (Ryan & Deci, 2002, p. 10), and *Basic needs theory*, which "…was formulated to explain the relation of motivation and goals to health and well-being" (Ryan & Deci, 2002, p. 10). Each of these mini-theories represents a piece of the overall SDT framework, and further explains the 3 types of motivation (intrinsic, extrinsic, and amotivation) identified by this theory. It is important to note that one of the components that make this theory distinct from other motivation theories is that SDT does not strictly consider extrinsic motivation to be negative. SDT views motivation as being on a continuum, with four different types of extrinsic motivation nestled between intrinsic motivation and amotivation, as demonstrated in the Figure 1 below.

Behavior	Non autonomous					Autonomous
Motivation type	AMOTIVATION	EXTRINSIC MOTIVATION				INTRINSIC MOTIVATION
Regulation type	Non-regulation	External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation	Intrinsic regulation

Figure 1. The continuum of autonomy. Adapted from Deci & Ryan (2000).

According to SDT, amotivation is the absence of motivation that results when an individual lacks intentionality or a sense of personal causation. In this case, none of the basic psychological needs of autonomy, competence, or relatedness are satisfied. Unsurprisingly, amotivation has been associated with poor academic performance and educational outcomes (Benware & Deci, 1984). The different types of extrinsic motivation reflect differing degrees of internalization and integration, and result in one of the following types of external motivation: external regulation (this is the "least autonomous form" of extrinsic motivation and often deals with one "being motivated to obtain a reward or avoid a punishment"), introjected regulation (this involves "partial internalization" and is typically associated with engaging in a behavior "to avoid guilt and shame or to attain ego enhancements and feelings of worth"), identified regulation (which is a "more self-determined form" of extrinsic motivation, and "involves a conscious valuing" of a behavior, as well as, "an acceptance of the behavior as personally important"), and integrated regulation (which is considered to be the "most autonomous form" of extrinsically motivated behavior, and "occurs when identifications have been evaluated and brought into congruence with the personally endorsed values, goals, and needs that are already part of the self") (Ryan & Deci, 2002, p. 17-18). When internalization is optimal, people will be able to identify with the importance of certain values and endorse them and accept them fully

into their sense of self and identity (Deci & Ryan, 2000). This process is thought to be critical for individuals' initiation and maintenance of socially important behaviors. For example, this applies to behaviors such as doing homework or cleaning one's room, which are not typically considered as being inherently enjoyable. Lastly, intrinsic motivation has been considered as being the prototype of autonomy (Deci, & Ryan, 1985; 2000). When intrinsically motivated, individuals choose to engage in activities for the simple enjoyment and excitement these activities bring, as opposed to doing for a reward or to satisfy a certain constraint (Deci, & Ryan, 1985). Individuals who are intrinsically motivated view themselves as being the cause of their own behavior (deCharms, 1968). For example, a student who chooses to engage in a school-related activity for the pleasure and enjoyment of learning something new is considered to be intrinsically motivated. It is important to note however, that the involvement and commitment to interesting activities requires the nutriments of need satisfaction in order to promote vitality and mental health (Ryan & Deci, 2002). Environmental conditions can have a significant influence on intrinsic motivation by satisfying or thwarting these needs. For example, research has demonstrated that monetary rewards may undermine people's intrinsic motivation because it decreases feelings of autonomy (Deci et al., 1999). Because intrinsically motivated behavior is considered autonomous, extrinsic rewards that are offered to individuals for doing something they enjoy at baseline may be perceived as controlling, leading to a shift in the individual feeling less intrinsically motivated.

In regard to academic performance, a narrative review of the literature suggests that autonomous types of motivation (intrinsic and identified regulation) are more strongly related to school performance than non-autonomous or controlled types of motivation. In line with SDT, studies have demonstrated that identification, and to a lesser extent intrinsic motivation, is

strongly and positively related to grades and GPA (Vallerand et al. 1993). These same studies have reported non-significant or slightly negative relations of introjected and external regulation to school achievement. Persistence in school is another important educational outcome. Studies have reported evidence that intrinsic motivation and identified regulation are positively related to intentions to persist and negatively related to intentions to drop out (Sénécal et al., 1995).

Intrapersonal Factors Predicting Academic Adjustment

Academic adjustment refers to the ability to cope with the demands of college related to educational expectations/requirements. The typical college experience comes with many challenges, with one of the biggest being academic. The five intrapersonal factors, in addition to self-determination/motivation, examined in this study as to how they relate to academic adjustment include alcohol use, procrastination, perfectionism, perceived level of stress, and coping style. Each of these factors has been linked to academic outcomes in the literature and will be examined further in this section.

Alcohol use. The use of alcohol in a college setting is considered to be a right of passage by many emerging adults. From social pressures to self-justifications, alcohol use is rampant in most college settings. A long-term research program called Monitoring the Future (MTF), which is conducted at the University of Michigan's Institute for Social research, has followed student-drinking behaviors from senior year of high school through young and middle adulthood (Johnston et al., 2009). Beginning 34 years ago, the study is comprised of several ongoing series of annual surveys of nationally representative samples. The fact that this research captures the "before", "during", and "after" of college students' drinking behaviors, it allows for the examination of the many changes associated with the college experience (Johnston et al., 2009). Several findings from this research program about alcohol use in college students are

noteworthy. First, despite the fact that most college students are not old enough to purchase alcoholic beverages, their experience with alcohol is widespread. Results from students surveyed in 2008 indicated that 85% of college students have tried alcohol, and 40% report frequent occasions of heavy drinking (five or more drinks in a row at least once in the prior two-week period). An additional surprising finding was that when compared to non-college attending respondents of the same age group, college students showed considerably less drop-off in monthly prevalence of alcohol use, and maintained a higher rate of heavy or binge drinking (Johnston et al., 2009). O'Malley and Johnston (2002) found that even though those individuals who do not end up going to college tend to drink more on average during the high school years when compared to future college students, college students actually still tend to consume more alcohol than non-college students between the ages of 18-22.

Prior research has demonstrated a link between alcohol use and academic outcomes. One significant finding is that of alcohol use and college student GPA. In a study by Singelton (2007), personal interview surveys were conducted with 754 students at a northeastern liberal arts college. The interviews measured for alcohol consumption, academic class, how frequently student's attended off-campus parties, and GPA, among other factors. This study controlled for precollege factors such as academic aptitude, high school rank, and parents' education. Findings indicated that the amount of alcohol consumed correlated significantly with GPA. In other words, a negative association existed between alcohol consumption and GPA in this sample. Conversely, a study by McCabe (2002) found that low academic performance measured by students' GPA was not a significant risk factor for episodic drinking. This study found instead that missing class and turning in late assignments because of drinking was a significant risk factor for heavy and frequent binge drinking (McCabe, 2002). Nonetheless, alcohol use has an

impact on academic outcomes whether measured via GPA or missing classes/assignments. In a more recent study by Singleton and Wolfson (2009), sleep, or lack thereof, was considered as a moderating factor between alcohol consumption and academic performance. Personal interview surveys were conducted with a random sample of 236 students at a liberal arts college. Results showed that alcohol consumption was a significant predictor of four differing types of sleep patterns, and that alcohol had indirect effects on sleepiness and GPA (Singleton & Wolfson, 2009).

Ham and Hope (2003) conducted a review of the literature on college students and problematic drinking. The factors that were examined regarding their relation to problem drinking in college students included personality characteristics, drinking behaviors and motives, alcohol expectancies, stress, and peer and family influence, among other relevant factors. The review also considered potential variables related to problematic drinking after college. Overall, the review highlighted the finding that there tend to be two groups of college students who are at greater risk for problem drinking. The first group included those students with a more sensation seeking personality type (Ham & Hope, 2003). This group consisted mostly of students who drank socially or for the purposes of enjoyment, and who were more likely to "be male, Anglo-American, and involved in Greek organization or other social environments that have high drinking norms" (Ham & Hope, 2003). The second group consisted of students who were of the more neurotic personality type. This group included students who drank for the purposes of coping, and who were more likely to be female, to react to stress by drinking, and to experience greater negative affect. This literature review also found perceived drinking norms and attitudes about drinking to possibly influence drinking behaviors in college students (Ham & Hope, 2003).

Procrastination. The temptation and opportunity to procrastinate on a task (i.e.,

homework assignment, studying) is plentiful in a college setting. From social activities going on with friends to the increased freedom that comes along with being a college student, making the choice to put off or delay a task can be an easy one to make. Procrastination involves knowing that a task needs to be completed, yet failing to motivate oneself to complete the task in a given time frame. Everyone procrastinates in some capacity from time to time. Procrastination is especially common in the academic world. For example, one study found that over 70% of university students admit that they procrastinate regularly (Schraw et al., 2007).

Prior research has confirmed the negative impact procrastination has on academic performance (Lay & Burns, 1991; Lay & Schouwenburg, 1993). Findings include that procrastinators are less likely to complete tasks accurately, take longer to complete assignments, and start studying later for exams than non-procrastinators. Another study found that procrastination was negatively related to test performance throughout the semester (Moon & Illingworth, 2004). Many students who engage in academic procrastination tend to view their behavior as an effort to avoid prolonged stress by limiting how much time they give themselves to complete a task, usually because they feel they "work better under pressure". However, in a longitudinal study by Tice and Baumeister (1997), results indicated that although those students who were procrastinators had the short-term benefits of decreased stress and fewer illnesses early in the semester, they were found to have higher levels of stress and illness later in the semester. Additionally, the procrastinators in this study received lower grades on a term paper and two exams during the semester, when compared to non-procrastinators.

Various factors have been identified for why students procrastinate. This includes factors such as poor time management, personality traits, lack of motivation, and not prioritizing or underestimated the amount of time a task will take to complete. A study by Jackson et al. (2003)

considered procrastination along with the amount of time students dedicated to social and recreational time during the academic year to see if there was a relationship between these two variables, suggesting that the less time an individual invested on academic tasks, the more likely their performance would suffer. This study did not find that procrastination and social/recreational time were associated. This indicates that those students who procrastinate are not necessarily spending their time engaging in more enjoyable social and recreational activities when avoiding academic tasks (Jackson et al., 2003).

Although procrastination is common, support exists that the tendency to procrastinate is a motivational problem, rather than an issue of factors such as poor time management skills or trait laziness (Senecal et al., 1995). This was demonstrated in a study by Senecal et al. (1995), in which autonomous self-regulation was considered as a predictor of academic procrastination. Four hundred ninety eight students from a junior college completed the Academic Motivation Scale, an academic procrastination scale, and other measures related to anxiety, self-esteem, and depression, which have each been found to be related to fear of failure. Results of this study indicated that students who were intrinsically motivated in regard to pursuing academic tasks procrastinated less than those who were extrinsically motivated. Additionally, results of this study indicated that self-regulation variables (motivation) accounted for 25% of the variance in academic procrastination, compared to the measures of depression, self-esteem, and anxiety, which only accounted for about 14% of the variance. A meta-analytic and theoretical review by Steel (2007) also found strong consistent support for achievement motivation as a possible cause of procrastination. Other predictors with strong support included factors such as task aversiveness and/or task delay, distractibility, and organization (Steel, 2007).

Perfectionism. The pressures of college can exacerbate an individual's tendency toward perfectionism. Perfectionism involves having high, unrealistic standards for performance, along with self-criticism (Blatt, 1995). Being a perfectionist can be viewed as being both advantageous and harmful. In the literature, two common types of perfectionism exist, including a positive form and a negative form of perfectionism. Although these two forms have been given varying labels within the literature, for example active and passive perfectionism (Adkins & Parker, 1996), positive and negative perfectionism (Terry-Short et al., 1995), adaptive and maladaptive perfectionism (Rice et al., 1998), and healthy and unhealthy perfectionism (Stumpf & Parker, 2000), it seems to be agreed upon in the literature that perfectionism can in fact be positive. According to Stoeber & Otto (2006) a main component to perfectionism being positive is if perfectionists are not overly concerned about mistakes and negative evaluations by others.

Rice & Mirzadeh (2000) examined differences between types of perfectionists (adaptive, maladaptive, and nonperfectionists) and whether their perfectionism related to academic integration. As predicted, adaptive perfectionists had better academic integration than maladaptive perfectionists. Results also revealed both academic and emotional benefits of adaptive perfectionism, while maladaptive perfectionism was associated with negative emotional effects and absolutely no academic advantages. Additionally, maladaptive perfectionists were characterized by excessive concerns about making mistakes and self-doubt, and reported that their parents were highly critical and had very high expectations of them. And not only were maladaptive perfectionists less academically integrated but they were also more depressed than adaptive perfectionists were (Rice & Mirzadeh, 2000).

A more recent study by Rice et al. (2006), considered perfectionism, stress, social disconnection, and academic adjustment among high-achieving university honor students. Four

hundred ninety nine students completed measures both early and late in the semester. As expected, adaptive perfectionism was associated with less perceived stress, greater social connectedness, and positive academic adjustment, while maladaptive perfectionism was linked to the negative aspect of each of these variables (higher perceived stress, less social connectedness, and negative academic adjustment). The results of this study indicated that several of the effects were moderated and at least partially mediated by perceived stress and social connection (Rice et al., 2006).

Many researchers however, doubt the idea that perfectionism can be positive (Greenspon, 2000; Flett & Hewitt, 2005). This is not surprising, as extensive research has demonstrated negative outcomes for maladaptive perfectionism. Maladaptive perfectionism has been linked to psychological factors such as anxiety, depression, and suicide. Academically, maladaptive perfectionism has been associated with negative outcomes as well. A study by Accordino et al. (2000) considered perfectionism, overall mental health, achievement, and motivation in adolescents. Results revealed that students' personal standards were significant predictors of academic achievement, as well as motivation. In relation to depression and self-esteem, results indicated that when there was a discrepancy between personal standards and actual performance, the effects included increased depression levels and decreased self-esteem. This was indicative of maladaptive perfectionism.

Perceived level of stress. As mentioned previously, the stressors associated with being a college student are great, due to the transitional nature of attending college. It is not uncommon for individuals to feel overwhelmed and stressed, especially if they are having difficulty keeping up with academic demands. How one perceives their level of stress can have great impact on their academic performance, including his/her overall mood and motivation. When stress is

perceived as being negative and becomes excessive, Campbell et al. (1992) found that was linked to both physical and mental illness, which undoubtedly will have a negative affect on academic performance. Pritchard and Wilson (2003) investigated the relationship between student emotional and social health and academic success and retention. Factors considered included stress, the frequency of student alcohol consumption, self-esteem, and fatigue. They surveyed 218 undergraduate students from a Midwestern university. Results revealed that both emotional and social factors were related to GPA, as well as attrition. More specifically, students who reported high stress levels were more likely to have a lower GPA (Pritchard & Wilson, 2003).

One longitudinal study examined the perception and sources of stress, along with coping mechanisms used and self-esteem, in undergraduate nursing students (Lo, 2002). A cohort of nursing students was followed over a 3 year period. Results indicated that chronic and transient stress was significantly correlated with avoidance coping behaviors and negative self-esteem. These results are of particular interest, as coping style is also a factor being examined in this study. The four main stressors identified by the students in this study included their studies, finance, family and health. In regard to coping, a peculiar study by Pettit and DeBarr (2011) examined college student perceived stress, their energy drink consumption, and their academic performance. The rising increase in energy drink consumption among college students is a concern, and is being considered within the literature as a potential health risk behavior. This study found positive correlations between participants' perceived stress and energy drink consumption. It was not surprising that participants' energy drink consumption was negatively correlated with academic performance. Gender differences existed for this sample, with male students reporting greater energy drink consumption.

Another study examining perceived stress considered emotional intelligence as a factor. Pau and Croucher (2003) investigated the relationship between emotional intelligence and perceived stress in dental school undergraduates. Two hundred and thirteen students participated by completing a questionnaire. Correlational analysis showed an inverse relationship between emotional intelligence and perceived stress. More specifically, those individuals with lower emotional intelligence scores reported higher levels of perceived stress. In this sample, perceived stress was also found to be associated with age, gender, and year of study.

Coping style. The way in which an individual chooses to cope with the demands of college is a major component to how he/she will perform academically. For example, choosing to avoid and escape from responsibilities will likely have a negative outcome on ones academic performance. As previously discussed, active and avoidant styles of coping have been identified in the literature. When avoidant coping is being utilized, an individual is usually trying to prevent feeling the effects of a stressor. On the other hand, when active coping is in effect an individual is likely using either problem-solving strategies or emotion-focused strategies to change or deal with the stressor. A study by Aspinwall and Taylor (1992) sampled 762 college freshman and found that coping style mediated the relationship between optimism, control, and self-esteem on college adjustment and performance. More specifically, the beneficial effects of these three factors (optimism, control, and self-esteem) were seen when there was greater use of active coping, nonuse of avoidance coping, and greater seeking of social support (Aspinwall & Taylor, 1992).

Shields (2001) looked at stress levels, active coping styles, and academic performance among persisting and nonpersisting college students. She compared students who persisted through an academic year versus a group of students who left after the fall semester, using the

same measures for each group. Her hypothesis was that stress in those students who persisted through the academic year would be related to active style coping being utilized, while stress in those who left after the fall semester would be related to avoidant coping or maladaptive coping. This hypothesis was supported by Shields' (2001) study. However, an additional hypothesis that stress would be related to higher GPA among persisters and lower among nonpersisters was not supported in this study. Lastly, further analysis identified several factors that were linked to greater retention and included having an active copinging style, being enrolled in more credit hours, having higher GPA, and not working while in school (Shields, 2001).

Dyson and Renk (2006) also considered levels of stress and the types of coping strategies used by college freshman. They examined these factors along with depressive symptoms, and femininity and masculinity. The researchers expected that the masculinity and femininity of college freshman would not be related to the levels of stress they experienced and instead would be more related to the types of coping strategies that they engaged in. It was also predicted that the levels of stress and types of coping strategies would explain a significant amount of variance in the prediction of depressive symptoms, above and beyond the amount of variance that would be explained by sex and gender role characteristics. Results of this study found a relationship between these four variables. Masculinity and femininity did in fact significantly predict problem-focused coping, while femininity was significantly correlated with emotion-focused coping. Also, the levels of stress reported, along with engaging in avoidant coping, were significant predictors of students' levels of depressive symptoms (Dyson & Renk, 2006).

Summary

Academic success is comprised of multiple components working together. One major component, and the focus of this study, is the concept of self. Although various

social/environmental factors have a significant impact, the self is critical to success. The intrapersonal factors that make up an individual's perceptions, beliefs, and abilities, are a major driving force in the academic world.

The benefit of studying academic success and/or academic adjustment outcomes through the viewpoint of SDT is that it not only makes it possible to measure the level or quantity of an individual's motivation, but also to be able to make a distinction between the type and quality of his/her motivation level (i.e. intrinsic motivation, extrinsic motivation, or amotivation).

CHAPTER 3

Method

Participants

A total of 273 college students, ranging in age from 18-25, participated in this study. The sample size chosen was determined from a power analysis with 95% power to detect a change in R^2 of 5%, with an alpha level of .05. This population was selected because about 60 percent of college students fall in the 18-25-age range category, making it a significant group to study. All of the participants completed a demographic survey. Table 1 below summarizes the demographic characteristics of the sample.

The majority of participants were female (*n*=198, 72.5%). Approximately half of the participants identified themselves as being Caucasian (*n*=141; 51.6%), with the remaining 48.4% identifying themselves as either African American (*n*=49; 17.9%), Middle Eastern (*n*=43; 15.8%), Asian/Pacific Islander (*n*=22; 8.1%), Hispanic (*n*=10; 3.7%), Hindu (*n*=6; 2.2%), or Other (*n*=2; .7%). Students' status was comparatively dispersed, with the majority of respondents either being Sophomores (*n*=46; 16.8%), Juniors (*n*=96; 35.2%), or Seniors (*n*=71; 26.0%). Lastly, over half of the sample resided with their parents (*n*=143; 52.4%), with the other 47.6% indicating they resided either on-campus (*n*=42; 15.4%), off-campus (apartment) (*n*=51; 18.7%), owned their own home (*n*=16; 5.9%), lived with a spouse/partner (*n*=19; 7.0%) or Other (*n*=2; .7%). Refer to Table 1 below for additional demographic information, including total of current credit hours enrolled and number of hours worked per week.

Table 1

Frequency Distributions – Demographic Characteristics of the Students

Demographic Characteristics (n = 273)	Number	Percent
Status		
Freshman	28	10.3
Sophomore	46	16.8
Junior	96	35.2
Senior	71	26.0
Other – Graduate	32	11.7
Gender		
Male	75	27.5
Female	198	72.5
Ethnicity		
African American	49	17.9
Asian/Pacific Islander	22	8.1
Caucasian	141	51.6
Hispanic	10	3.7
Middle Eastern	43	15.8
Hindu	6	2.2
Other	2	0.7
Number of Current Credit Hours		
1-6	9	3.3
7-11	22	8.1
12-18	236	86.4
Over 18	6	2.2
Number of Hours Worked per Week		
Not currently working	74	27.1
1-10 hrs	21	7.7
11-20 hrs	75	27.5
21-30 hrs	61	22.3
31-40 hrs	33	12.1
Over 40 hrs	9	3.3
Place of Residence		
On-campus	42	15.4
Off-campus	51	18.7
Own home	16	5.9
With parents	143	52.4
With spouse/partner	19	7.0
Other	2	0.7

Measures

In addition to the demographic survey, all participants completed self-report measures consisting of the following seven constructs: academic adjustment, academic motivation, alcohol use, procrastination, perfectionism, perceived stress, and coping style. The Cronbach's alpha internal consistency reliability coefficients for each scale are reported in Table 2 below. Copies of all instruments can be found in Appendix C.

Table 2

Cronbach Alpha Coefficients – Scaled Variables

Scale and Subscales	α Coefficient
Student Adaptation to College Questionnaire (SACQ)	
Academic Adjustment	.83
Full Scale Adjustment	.92
Academic Motivation Scale – College Version	
Intrinsic Motivation	.91
Extrinsic Motivation	.88
Amotivation	.81
Alcohol Use Disorders Identification Test (AUDIT)	.85
Tuckman Procrastination Scale	.81
Almost Perfect Scale – Revised (APS-R)	
High Standards (Adaptive)	.90
Discrepancy (Maladaptive)	.93
Full Scale	.83
Perceived Stress Scale	.73
Brief Coping Orientations to Problems Experienced Questionnaire	
Problem-Focused Coping	.76
Emotion-Focused Coping	.74
Avoidant Coping	.65

Participant Demographics. A demographic survey was utilized to obtain the following participant information: Student status, age, gender, race/ethnicity, current number of credit hours enrolled, working status (number of hours per week), and place of residence.

Academic Motivation (Self-determination). The Academic Motivation Scale – College Version (AMS-C; Vallerand et al., 1992), which was created based on the views of Self-Determination Theory (Deci & Ryan, 1985), measures intrinsic motivation, extrinsic motivation, and amotivation in college students. It contains 28 items, which are assessed on a 7-point scale. The different forms of motivation are theorized to lie on a self-determination dimension which ranges from amotivation, to external, introjected, and identified regulation (which are 3 forms of extrinsic motivation), and finally to intrinsic motivation (Vallerand et al., 1993). This scale has been found to have high internal consistency levels, ranging from .72 to .87. The Cronbach's alpha internal consistency reliability coefficients for this sample were .91, .88, and .81 for the intrinsic motivation, extrinsic motivation, and amotivation subscales, respectively.

For the assessment of predictive validity, the relations of concentration, positive emotions in class, academic satisfaction, intentions to continue schooling and school performance to the AMS subscales were tested. Results showed that the most negative correlations were obtained with amotivation, whereas the most positive ones were found with the intrinsic motivation subscales. The other subscales had correlations with educational outcomes that were in the range between values obtained for the amotivation and identified regulation subscales.

Alcohol Use. The Alcohol Use Disorders Identification Test (AUDIT; Babor et al., 2001) is used to determine alcohol use and problems associated with drinking. The AUDIT is a 10-item self-report instrument and is scored on a 5-point Likert scale. It is comprised of three subscales, including a quantity/frequency subscale (i.e., "How often do you have a drink containing

alcohol?"), a dependency or emerging dependence subscale (i.e., "How often during the past year have you failed to do what was normally expected of you because of drinking?"), and a current harm scale (i.e., How often during the last year have you been unable to remember what happened the night before because you had been drinking?").

The AUDIT was developed and evaluated for over two decades, and has been found to provide an accurate measure of risk across gender, age, and cultures (Babor et al., 2001). Additionally, Fleming et al., (1991) examined the AUDIT in university students and found it to be accurate in detecting alcohol dependence in this sample. Research studies exploring alcohol use among the general population and among college students reported a Cronbach alpha of .86 to .89 for the AUDIT (Locke & Mahalik, 2005; Reinert & Allen, 2002). Several other studies have reported on the reliability of the AUDIT (Hays et al., 1995; Sinclair et al., 1992) and results indicate high internal consistency, indicating that the AUDIT is measuring a single construct and is doing so reliably (Babor et al., 2001). A study by Sinclaire et al. (1992) demonstrated high reliability (r=. 86) for this measure in a sample consisting of both non-hazardous drinkers and alcoholics. In the current the sample, the Cronbach's alpha coefficient was .85. The reliability and validity of the instrument are not compromised when administered along with other screening questionnaires (Daeppen et al., 2000).

Procrastination. The Tuckman Procrastination Scale (Tuckman, 1991) is used to assess student procrastination. It is a 16-item self-report measure and is scored on a 4-point scale ranging from 1("*That's* ***not*** *me for sure*") to 4 ("*That's me for sure*"). Students respond to statements such as "I delay finishing jobs even when they're important" and "Whenever I make a plan of action I follow it". Cronbach's alpha analyses revealed an internal consistency reliability coefficient of .86 (Tuckman, 1991). Other research using Tuckman's procrastination scale also

reported sufficient internal consistency reliability coefficients of .90 (Howell et al., 2006) and .86 (Klassen et al., 2008). The Cronbach's alpha coefficient for the current sample was .85.

In addition, evidence of validity was shown through a significant relationship between the procrastination scale and the behavioral measure of self-regulated performance in homework completion (Tuckman, 1991).

Perfectionism. The Almost Perfect Scale – Revised (APS-R; Slaney et al., 1996) measures adaptive versus maladaptive perfectionism. It is a 23-item self-report measure of three perfectionism dimensions: discrepancy (12 items), high standards (7 items), and order (4 items). Higher scores for each subscale indicate higher levels of perfectionism. Extensive psychometric analyses on the APS–R have supported the three hypothesized subscales (Slaney, Rice, & Ashby, 2002; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). Cronbach's coefficient alphas tend to be in the .85 to .90 range for High Standards and Discrepancy scores, respectively (Slaney et al., 2001). The combination of high scores on the Discrepancy and High Standards subscales has differentiated maladaptive perfectionists from adaptive perfectionists (who have higher High Standards scores but lower Discrepancy scores) (Grzegorek et al., 2004; Mobley et al., 2005; Rice & Slaney, 2002). In the current sample, the Cronbach's alpha coefficients were .90 for the High Standards subscale and .93 for the Discrepancy subscale. Additionally, the APS-R has been demonstrated to be a valid measure for the assessment of perfectionism.

Perceived Stress. The Perceived Stress Scale (PSS; Cohen et al., 1983) is used to measure self-appraised stress. The scores from the PSS appear to possess adequate psychometric qualities in terms of concurrent and predictive validity and internal consistency (Cohen, 1986; Cohen et al., 1983). For the purpose of this study, 4 of the 10 items from the scale will be used. Cohen et al. (1983) identified the 4-item PSS as a reasonable, psychometrically sound alternative to the

longer PSS. The 4 PSS items are considered to be indicators of stress as distinct from negative affect. Internal consistency for scores derived from the 4-item version has ranged from .72 (Cohen et al., 1983) to .81 (Chang, 2000). A Cronbach's alpha coefficient of .73 was found for the current sample. Items on the PSS ask participants to rate the frequency (ranging from 0 = Never to 4 = Very Often) of potentially stressful experiences. For example, a sample item includes: "In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?" Higher scores on each of the questions correspond to greater perceived stress.

Coping Style. The Brief Coping Orientations to Problems Experienced (Brief COPE; Carver, 1997) questionnaire is a 28-item scale and measures 14 conceptually different coping reactions (use of alcohol/drugs, seeking emotional support, giving up, etc.). Compared to the original version of the COPE (Carver et al., 1989), the Brief COPE allows for gathering coping responses more quickly (Carver, 1997). The Brief Cope is similar in context to the COPE, however it "omits two scales of the full COPE, reduces others to two items per scale, and adds one scale" (Carver, 1997, p. 92). The questionnaire asks participants to respond to how they have been dealing with stress on a 4-point scale ranging from 1 ("I haven't been doing this at all") to 4 ("I've been doing this a lot"). Participant's scores are considered separately for each scale. The measure does not produce an overall coping index. For the purpose of this study each of the scales will be classified and grouped together (following the procedure of Wilson et al. 2005), as either active coping (emotion focused and problem focused) or avoidant coping.

Like the original COPE, the Brief COPE has been shown to be a useful and sound measure of coping strategies. Reliability information was gathered when the Brief COPE was administered to a sample of community residents who were participating in a study of recovery

after Hurricane Andrew (Carver, 1997). Cronbach's alpha analyses have revealed internal consistency reliability coefficients ranging from .90 (substance use) to .50 (venting). The alphas for the current study are .76, .74, and .65 for the problem-focused, emotion-focused, and avoidant subscales, respectively.

Academic Adjustment. The Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1989) is a widely used measure for assessing student adjustment to college. It contains 67 items, of which students respond to on a 9-point scale ranging from "applies very closely to me" to "doesn't apply to me at all". The SACQ measures overall adjustment to college as well four additional factors including: academic adjustment, social adjustment, personal/emotional adjustment, and goal commitment/institutional attachment. For the purpose of this study only the academic adjustment and overall adjustment scores will be used. Higher score totals, overall and on each scale, indicate better adjustment.

The SACQ is a reliable and valid measure of college student academic adjustment (Baker & Siryk, 1989). Both the full scale and academic adjustment subscale have been shown to have high internal consistency reliability (full scale: .92; academic: .81 to .90). Other studies have also demonstrated that the SACQ is a reliable measure. For example, Beyers and Goossens (2002) found Cronbach alphas to be .84 for the academic subscale and .92 for the total adjustment scale. Katz (2008) found alphas of .85 and .93 for the academic, and total adjustment scales, respectively. For the current study, the Cronbach's alpha coefficients were .83 for the academic adjustment subscale, and .92 for the full scale.

The validity of the SACQ was determined from inter-correlation data from 34 separate administrations of the questionnaire at 21 different colleges. Baker and Siryk (1989) reported various validity studies indicating that academic adjustment was significantly correlated with

freshman year GPA. Additionally, Beyers and Goossens (2002) found support for higher levels of college adjustment being correlated with higher levels of academic motivation in college freshman.

Procedure

Data was collected using self-assessment questionnaires in a paper and pencil format. Participants were recruited by way of two different methods. In the first method, students were approached near the end of class of randomly selected classrooms at Wayne State University, with prior approval from the class instructor. Students were provided with information about the current study, were informed that their participation was entirely voluntary, and that no identifying information would be obtained from those students who chose to participate, so as to retain anonymity. Compensation for this method included being entered in a drawing for a $25 Visa gift card, which was done at the end of class for those who participated. In the second method of participant recruitment, a table was set up on the main floor of the Student Center with information about the current study, with prior approval from the Dean of Students. Students were informed that their participation was entirely voluntary, and that no identifying information would be obtained from those students who chose to participate, so as to retain anonymity. Compensation for this method included receiving a $5 gift card to Subway, Starbucks, or Barnes and Noble. All participants were given an information sheet containing details about the study, including the risks, benefits, and compensation information associated with their participation.

Table 3

Statistical Analyses

Research Hypotheses	Variables	Statistical Analyses
RQ1: How strongly is academic motivation (self-determination) correlated with academic adjustment in this sample?		
H_1: Academic motivation (self-determination) will be correlated with academic adjustment.	<u>Predictor</u> • Academic motivation (Self-determination) <u>Criterion</u> • Academic adjustment	Bivariate correlation analysis
RQ2: How well do intrapersonal factors (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) explain a statistically significant proportion of variance in academic adjustment? Specifically, do students who consume alcohol, procrastinate, are perfectionists (maladaptive), perceive high stress, and have an avoidant coping style experience less successful academic adjustment?		
H_2: The intrapersonal factors (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) will explain a statistically significant proportion of variance in academic adjustment.	<u>Predictor variables</u> • Alcohol use • Procrastination • Perfectionism • Perceived level of stress • Coping style <u>Criterion</u> • Academic adjustment	Multiple Linear Regression Analysis
RQ3: What is the additive contribution of various risk and protective factors (intrapersonal factors) in explaining variance in academic adjustment above and beyond academic motivation (self-determination)?		
H_3: There will be a significant additive contribution of various risk and protective factors (intrapersonal factors) in explaining variance in academic adjustment above and beyond academic motivation (self-determination).	<u>Predictor variables</u> Step 1: Academic motivation (Self-determination) Step 2: • Alcohol use • Procrastination • Perfectionism • Perceived level of stress • Coping style <u>Criterion</u> • Academic adjustment	Hierarchical Linear Regression Analysis

RQ4: Do the intrapersonal factors (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) moderate the relations between academic motivation (self-determination) and academic adjustment?		
H_4: The intrapersonal factors (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) will moderate the relations between academic motivation (self-determination) and academic adjustment.	<u>Predictor</u> Academic motivation (Self-determination) <u>Moderating variables</u> Alcohol use Procrastination Perfectionism Perceived level of stress Coping style <u>Criterion</u> Academic adjustment	Multiple Linear Regression Analysis (5 different analyses will be conducted with one moderator variable per analysis)

CHAPTER 4

Results

The purpose of this study was to assess academic adjustment in college students, which refers to students' success in coping with the educational demands of the college experience. The focus was to magnify the area of self by considering a variety of intrapersonal factors to examine how these factors may influence academic adjustment. These factors included academic motivation (self-determination), alcohol use, procrastination, perfectionism, perceived level of stress, and coping style. The goal was to examine both their combined and unique contributions. Means and standard deviations for all of the variables are included in Table 4 below. This is followed by an intercorrelation matrix among the primary study variables, which is included in Table 5 below. Additionally, in preparation for analyses, each of the predictor variables were centered before being analyzed in an effort to reduce collinearity and, in the moderation analyses, improve the power to detect potential moderation of the variables. Skewness was calculated to check for even distribution of all variables. Results were acceptable.

Table 4

Descriptive Statistics – Scaled Variables (n = 273)

Scaled Variables	Mean	SD	Range Min.	Range Max.
College Adjustment – Total	5.76	.99	3.97	8.45
Academic Adjustment	6.16	0.99	3.42	8.67
Academic Motivation				
Intrinsic Motivation	4.75	1.24	1.00	7.00
Extrinsic Motivation	5.78	1.03	1.58	7.00
Amotivation	1.79	1.25	1.00	7.00
Alcohol Use	0.41	0.46	0.00	2.80
Procrastination	2.32	0.47	1.19	3.81
Perfectionism - Total	4.68	0.94	1.35	7.00
High Standards (Adaptive)	6.00	1.09	1.00	7.00
Discrepancy (Maladaptive)	3.74	1.48	1.00	7.00
Perceived Stress	1.61	0.79	0.00	4.00
Coping Style				
Problem-Focused Coping	2.65	0.70	1.00	4.00
Emotion-Focused Coping	2.23	0.49	1.00	3.75
Avoidant Coping	1.86	0.56	1.00	3.83

Possible ranges: Total college adjustment – 1 to 9; Academic Adjustment – 1 to 9; Self-Determination – 1 to 7; Alcohol Use – 0 to 4; Procrastination – 1 to 4; Perfectionism – 1 to 7; Perceived Stress – 0 to 4; Coping Style – 1 to 4.

Table 5

Spearman Intercorrelation Matrix – All Study Variables (n = 273)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	--												
2	.60**	--											
3	-.09	-.25**	--										
4	.17**	.20**	-.50**	--									
5	.11	.16**	-.51**	-.88**	--								
6	-.16**	-.10	.04	-.05	.01	--							
7	-.13*	-.02	.07**	-.32**	-.32**	-.01	--						
8	.34**	.44**	-.34**	.36**	.30**	-.16	-.14*	--					
9	.06	.14*	.21**	-.39**	-.41**	-.09	.37**	.05	--				
10	-.04	-.01	.17**	-.35**	-.48**	-.09	.31**	-.10	.47**	--			
11	.23**	.23**	-.14*	.20**	.18**	-.10	-.05	.25**	-.05	-.05	--		
12	.21**	.15*	.05	-.03	-.12*	-.03	.16**	.17**	.20**	.21**	.59**	--	
13	.09	.09	.19**	-.26**	-.33**	-.04	.17**	-.04	.25**	.34**	.13*	.38**	--

** $p < .01$; * $p < .05$

Note: 1 – Intrinsic Motivation; 2 – Extrinsic Motivation; 3 – Amotivation; 4 – Academic Adjustment; 5 – Overall College Adjustment; 6 – Alcohol Use; 7 – Procrastination; 8 – Adaptive Perfectionism (High Standards); 9 – Maladaptive Perfectionism (Discrepancy); 10 – Perceived Stress; 11 – Problem-Focused Coping; 12 – Emotion-Focused Coping; 13 – Avoidant Coping

Research Question 1: How strongly is academic motivation (self-determination) correlated with academic adjustment in this sample?

H_1: Academic motivation (self-determination) will be correlated with academic adjustment.

Spearman correlation coefficients were generated (see Table 5 above) in order to answer this question. A Spearman's correlation was used because several of the scales had skewed distributions, which violate the normality assumption required to use a Pearson's correlation coefficient accurately.

As demonstrated in Table 5, there is indeed a correlation between academic motivation and academic adjustment in this sample. More specifically, both intrinsic motivation ($r = .17$) and extrinsic motivation ($r = .20$) had statistically significant positive associations with academic adjustment. Also, as expected, amotivation ($r = -.50$) had a strong and statistically significant negative association with academic adjustment.

Research Question 2: How well do intrapersonal factors (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) explain a statistically significant proportion of variance in academic adjustment? Specifically, do students who consume alcohol, procrastinate, are perfectionists (maladaptive), perceive high stress, and have an avoidant coping style experience less successful academic adjustment?

H_2: The intrapersonal factors (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) will explain a statistically significant proportion of variance in academic adjustment.

Multiple linear regression analysis was used to determine if the chosen intrapersonal factors would explain a significant proportion of the variance in academic adjustment. The following intrapersonal factors were entered as predictor variables all in one step: alcohol use, procrastination, perfectionism, perceived level of stress, and coping style. Academic adjustment was the criterion variable.

Results of this analysis revealed that the selected intrapersonal factors explained 35.3% of the variance in academic adjustment ($p<.01$) in this sample. Procrastination ($\beta = -0.13$), maladaptive perfectionism ($\beta = -0.29$) and avoidant coping ($\beta = -0.13$) were significantly associated with lower academic adjustment. Additionally, adaptive perfectionism was associated with significantly higher academic adjustment ($\beta = 0.33$). Alcohol use, perceived stress, and both active coping styles (problem-focused and emotion focused) were not found to be significantly associated with academic adjustment when adjusting for all of the other personal factors. The results are included in Table 6 below.

Table 6

Multiple Linear Regression – Predicting Academic Adjustment (n = 273)

Predictors	B	SEB	β
Alcohol Use	-3.38	3.05	-.06
Procrastination	-7.20	3.16	-.13*
Perfectionism			
High Standards (Adaptive)	8.10	1.33	.33**
Discrepancy (Maladaptive)	-5.40	1.10	-.29**
Perceived Stress	-3.03	2.07	-.09
Coping Style			
Problem-Focused	4.72	2.72	.12
Emotion-Focused	-0.87	4.19	-.02
Avoidant	-6.45	2.80	-.13*

Note. $^{*}p < .05$, $^{**}p < .01$, $F = 17.99$, $p = <.0001$, $R^2 = .35$

Research Question 3: What is the additive contribution of various risk and protective factors (intrapersonal factors) in explaining variance in academic adjustment above and beyond academic motivation (self-determination)?

H_3: There will be a significant additive contribution of various risk and protective factors (intrapersonal factors) in explaining variance in academic adjustment above and beyond academic motivation (self-determination).

Hierarchical linear regression analysis was used to determine the contribution of the selected intrapersonal factors (academic motivation (self-determination), alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) in explaining the variance in academic adjustment above and beyond academic motivation (self-determination). In step 1, the academic motivation subscales (intrinsic, extrinsic, and amotivation) were entered into the model. At step 2 the intrapersonal variables (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) were added to the model. The R^2, model estimates, standard error of the estimates, standardized beta weights, t-statistics for the model estimates, and p-values for the model estimates are reported. The difference between the step 1 R^2 and the step 2 R^2 is reported with the associated F-test and p-value. This test signifies if the intrapersonal factors explain a significant proportion of variance in academic adjustment.

Results indicated that academic motivation (self-determination) explained 21% of the variance in academic adjustment. In the first step of hierarchical linear regression modeling, one unit increase in intrinsic motivation is associated with an increase of 0.22 percentiles of academic adjustment. Alternatively, a one unit increase in amotivation is associated with a decrease of 0.44 percentiles of academic adjustment. Extrinsic motivation was not found to be

significantly associated with academic adjustment after adjusting for the other academic motivation factors.

The second step of the hierarchical linear regression modeling revealed that inclusion of the intrapersonal factors explained significantly greater variance in academic adjustment. The full model with academic motivation and all of the intrapersonal factors explained 42% of the variance in academic adjustment, which is an increase of 21% ($F = 11.83$, $p<0.01$) beyond step 1. The results are in Table 7 below.

Table 7

Hierarchical Multiple Linear Regression Analysis

Academic Adjustment with Intrapersonal Factors (n=273)

Predictor	B	SEB	β	R^2
Included Variables				
Step 1:				21%
Academic Motivation				
Intrinsic	4.78	1.52	.22**	
Extrinsic	-2.17	1.90	-.08	
Amotivation	-9.47	1.24	-.44**	
Step 2:				42%
Academic Motivation				
Intrinsic	2.63	1.39	.12	
Extrinsic	-0.73	1.74	-.03	
Amotivation	-5.86	1.16	-.27**	
Alcohol Use	-1.58	2.94	-.03	
Procrastination	-7.17	3.08	-.13*	
Perfectionism				
Discrepancy (Maladaptive)	-4.48	1.08	-.24**	
High Standards (Adaptive)	5.66	1.37	.23**	
Perceived Stress	-3.04	1.98	-.09	
Coping Style				
Problem-Focused	3.59	2.61	.09	
Emotion-Focused	0.19	4.02	.003	
Avoidant	-5.94	2.70	-.12*	

Note. **p < .01; *p < .05; Step 2: Δr^2 =.21, (p < .01, $F = 11.83$, df = 8, 261)

Research Question 4: Do the intrapersonal factors (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) moderate the relations between academic motivation (self-determination) and academic adjustment?

H_4: The intrapersonal factors (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) will moderate the relations between academic motivation (self-determination) and academic adjustment.

Multiple linear regression models were used to analyze the potential moderation effect of each of the intrapersonal (predictor) variables (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) with the three (predictor) academic motivation subscales (intrinsic motivation, extrinsic motivation, and amotivation). As previously mentioned, each of the predictor variables were centered before being entered into the model to reduce collinearity and improve the power to detect potential moderation of the variables. Moderation was assessed for each factor of academic motivation (intrinsic, extrinsic, and amotivation) by including the interaction effect between the academic motivation subscales and the intrapersonal factor of interest. All combinations of the three academic motivation subscales by the eight intrapersonal measures (alcohol use, procrastination, adaptive perfectionism, maladaptive perfectionism, perceived level of stress, problem-focused coping, emotion-focused coping, and avoidant coping) were completed independently. Standardized beta weights and the change in R^2 were tested and assessed to detect moderation.

Alcohol use (Table 8 below) and problem-focused coping (Table 13 below) were not found to moderate any sub-type of academic motivation. The remaining intrapersonal factors including procrastination (β =.19; Δr^2 = 3.3%; $p < .01$; Table 9 below), adaptive perfectionism (high standards) (β = -.13; Δr^2 = 1.3%; $p < .01$; Table 10 below), maladaptive perfectionism

(discrepancy) ($\beta = .21$; $\Delta r^2 = 4.0\%$; $p < .01$; Table 11 below), perceived stress ($\beta = .11$; $\Delta r^2 = 1.0\%$; $p < .05$; Table 12 below), emotion-focused coping ($\beta = .13$; $\Delta r^2 = 1.5\%$; $p < .05$; Table 14 below), and avoidant coping ($\beta = .12$; $\Delta r^2 = 1.3\%$; $p < .05$; Table 15 below) were found to moderate the effects of amotivation on academic adjustment in this sample. In other words, the addition of each of these moderation interactions to the academic adjustment model explained more variance than both predictor variables without an interaction. There were no significant moderation effects on either intrinsic or extrinsic motivation for any of the intrapersonal factors. The results of these analyses are summarized in Tables 8-15 below. In each table, the standardized beta weights and the change in R^2 between the individual predictor variables and the interaction term are presented. The interaction term, if significant, is indicative of an interaction/moderation effect between the predictor and criterion variables. Each predictor variable of interest (alcohol use, procrastination, adaptive perfectionism, maladaptive perfectionism, perceived level of stress, problem-focused coping, emotion-focused coping, and avoidant coping) is represented in an individual table below.

Table 8

Multiple Linear Regression Analyses

Academic Adjustment with Alcohol Use as Moderating Variable (n = 273)

	B	SEB	β	R^2	*Interaction* R^2	Δr^2
Analysis #1: Intrinsic Motivation						
Predictor Variables				**19.8%**		
Intrinsic Motivation	0.92	.65	.13			
Extrinsic Motivation	-0.62	.63	-.07			
Amotivation	-2.90	.42	-.41**			
Alcohol Use	-0.55	1.11	-.03			
Interaction Term:					**20.5%**	**.7%**
Alcohol Use*Intrinsic Motivation	1.43	.94	.12			
Analysis #2: Extrinsic Motivation						
Predictor Variables				**19.8%**		
Intrinsic Motivation	1.55	.51	.21**			
Extrinsic Motivation	-0.97	.77	-.11			
Amotivation	-2.93	.42	-.41**			
Alcohol Use	-0.54	1.17	-.03			
Interaction Term:					**20.0%**	**.2%**
Alcohol Use*Extrinsic Motivation	0.76	1.04	.06			
Analysis #3: Amotivation						
Predictor Variables				**19.8%**		
Intrinsic Motivation	1.53	.51	.21**			
Extrinsic Motivation	-0.65	.63	-.07			
Amotivation	-3.09	.51	-.43**			
Alcohol Use	-1.07	1.19	-.05			
Interaction Term:					**19.9%**	**.1%**
Alcohol Use*Amotivation	0.33	.65	.04			

***p < .01; *p < .05*

Table 9

Multiple Linear Regression Analyses

Academic Adjustment with Procrastination as Moderating Variable (n = 273)

	B	SEB	β	R^2	*Interaction* R^2	Δr^2
Analysis #1: Intrinsic Motivation						
Predictor Variables				**27.8%**		
Intrinsic Motivation	.99	.14	.50*			
Extrinsic Motivation	.07	.01	.62			
Amotivation	-2.75	-.39	.40**			
Procrastination	-5.59	-.30	1.02**			
Interaction Term:					**27.8%**	**0%**
Procrastination*Intrinsic Motivation	.31	.02	.78			
Analysis #2: Extrinsic Motivation						
Predictor Variables				**27.8%**		
Intrinsic Motivation	1.08	.49	.15*			
Extrinsic Motivation	-.19	.63	-.02			
Amotivation	-2.73	.39	-.38**			
Procrastination	-5.32	1.01	-.28**			
Interaction Term:					**28.5%**	**.7%**
Procrastination*Extrinsic Motivation	-1.59	1.00	-.09			
Analysis #3: Amotivation						
Predictor Variables				**27.8%**		
Intrinsic Motivation	1.09	.48	.14*			
Extrinsic Motivation	-.23	.60	-.03			
Amotivation	-2.91	.39	-.41**			
Procrastination	-5.61	.99	-.30**			
Interaction Term:					**31.1%**	**3.3%**
Procrastination*Amotivation	3.14	.87	.19**			

***p < .01; *p < .05*

Table 10

Multiple Linear Regression Analyses

Academic Adjustment with Adaptive Perfectionism as Moderating Variable (n = 273)

	B	SEB	β	R^2	*Interaction* R^2	Δr^2
Analysis #1: Intrinsic Motivation						
Predictor Variables				**23.3%**		
Intrinsic Motivation	1.39	.50	.19**			
Extrinsic Motivation	-1.22	.64	-.14			
Amotivation	-2.67	.42	-.37**			
Adaptive Perfectionism	-1.74	.48	.21**			
Interaction Term:					**23.7%**	**.4%**
Adaptive Perf.*Intrinsic Motivation	-.35	.29	-.07			
Analysis #2: Extrinsic Motivation						
Predictor Variables				**23.3%**		
Intrinsic Motivation	1.41	.50	.20**			
Extrinsic Motivation	-1.09	.64	-.12			
Amotivation	-2.64	.42	-.37**			
Adaptive Perfectionism	1.76	.50	.22**			
Interaction Term:					**23.3%**	**0%**
Adaptive Perf.*Extrinsic Motivation	.05	.33	.01			
Analysis #3: Amotivation						
Predictor Variables				**23.3%**		
Intrinsic Motivation	1.31	.50	.18**			
Extrinsic Motivation	-1.11	.63	-.13			
Amotivation	-2.75	.42	-.38**			
Adaptive Perfectionism	2.20	.53	.27**			
Interaction Term:					**24.6%**	**1.3%**
Adaptive Perfectionism*Amotivation	-.79	.30	-.13*			

$^{**}p < .01$; $^{*}p < .05$

Table 11

Multiple Linear Regression Analyses

Academic Adjustment with Maladaptive Perfectionism as Moderating Variable (n = 273)

	B	SEB	β	R^2	*Interaction* R^2	Δr^2
Analysis #1: Intrinsic Motivation						
Predictor Variables				**30.8%**		
Intrinsic Motivation	1.42	.47	.20**			
Extrinsic Motivation	.17	.60	.02			
Amotivation	-2.35	.39	-.33**			
Maladaptive Perfectionism	-2.21	.33	-.36**			
Interaction Term:					**31.2%**	**.4%**
Maladaptive Perf.*Intrinsic Motivation	.32	.25	.07			
Analysis #2: Extrinsic Motivation						
Predictor Variables				**30.8%**		
Intrinsic Motivation	1.45	.47	.20**			
Extrinsic Motivation	-.01	.61	.00			
Amotivation	-2.44	.40	-.34**			
Maladaptive Perfectionism	-2.02	.33	-.33**			
Interaction Term:					**31.0%**	**.2%**
Maladaptive Perf.*Extrinsic Motivation	-.31	.32	-.05			
Analysis #3: Amotivation						
Predictor Variables				**30.8%**		
Intrinsic Motivation	1.31	.46	.18**			
Extrinsic Motivation	.15	.58	.02			
Amotivation	-2.84	.40	-.40**			
Maladaptive Perfectionism	-1.92	.31	-.32**			
Interaction Term:					**34.8%**	**4.0%**
Maladaptive Perf.*Amotivation	1.08	.27	.21**			

***p < .01; *p < .05*

Table 12

Multiple Linear Regression Analyses

Academic Adjustment with Perceived Stress as Moderating Variable (n = 273)

	B	SEB	β	R^2	*Interaction* R^2	Δr^2
Analysis #1: Intrinsic Motivation						
Predictor Variables				**28.4%**		
Intrinsic Motivation	1.37	.48	.19**			
Extrinsic Motivation	-.46	.60	-.05			
Amotivation	-2.68	.40	-.37**			
Perceived Stress	-3.40	.59	-.30**			
Interaction Term:					**28.6%**	**.2%**
Perceived Stress*Intrinsic Motivation	.39	.47	.04			
Analysis #2: Extrinsic Motivation						
Predictor Variables				**28.4%**		
Intrinsic Motivation	1.40	.48	.19**			
Extrinsic Motivation	-.46	.60	-.05			
Amotivation	-2.67	.40	-.37**			
Perceived Stress	-3.40	.59	-.30**			
Interaction Term:					**28.4%**	**0%**
Perceived Stress*Extrinsic Motivation	.11	.56	.01			
Analysis #3: Amotivation						
Predictor Variables				**28.4%**		
Intrinsic Motivation	1.39	.48	.19**			
Extrinsic Motivation	-.47	.60	-.05			
Amotivation	-2.81	.40	-.39**			
Perceived Stress	-3.17	.60	-.28**			
Interaction Term:					**29.4%**	**1%**
Perceived Stress*Amotivation	1.20	.60	.11*			

***p < .01; *p < .05*

Table 13
Multiple Linear Regression Analyses

Academic Adjustment with Problem-Focused Coping as Moderating Variable (n = 273)

	B	SEB	β	R^2	*Interaction* R^2	Δr^2
Analysis #1: Intrinsic Motivation						
Predictor Variables				**20.7%**		
Intrinsic Motivation	1.39	.52	.19**			
Extrinsic Motivation	-.69	.63	-.08			
Amotivation	-2.96	.41	-.41**			
Problem-Focused Coping	1.37	.72	.11			
Interaction Term:					**20.7%**	**0%**
Problem-Focused*Intrinsic Motivation	-.21	.56	-.02			
Analysis #2: Extrinsic Motivation						
Predictor Variables				**20.7%**		
Intrinsic Motivation	1.41	.51	.20**			
Extrinsic Motivation	-.70	.63	-.08			
Amotivation	-2.96	.41	-.41**			
Problem-Focused Coping	1.38	.73	.11			
Interaction Term:					**20.7%**	**0%**
Problem-Focused*Extrinsic Motivation	-.21	.74	-.02			
Analysis #3: Amotivation						
Predictor Variables				**20.7%**		
Intrinsic Motivation	1.45	.51	.20**			
Extrinsic Motivation	-.73	.63	-.08			
Amotivation	-3.01	.42	-.42**			
Problem-Focused Coping	1.35	.72	.11			
Interaction Term:					**20.8%**	**.1%**
Problem-Focused*Amotivation	.40	.54	.04			

***p < .01; *p < .05*

Table 14

Multiple Linear Regression Analyses

Academic Adjustment with Emotion-Focused Coping as Moderating Variable (n = 273)

	B	SEB	β	R^2	*Interaction* R^2	Δr^2
Analysis #1: Intrinsic Motivation						
Predictor Variables				**20.2%**		
Intrinsic Motivation	1.68	.51	.23**			
Extrinsic Motivation	-.61	.63	-.07			
Amotivation	-2.93	.42	-.41**			
Emotion-Focused Coping	-1.38	1.03	-.08			
Interaction Term:					**20.2%**	**0%**
Emotion-Focused*Intrinsic Motivation	-.30	.76	-.02			
Analysis #2: Extrinsic Motivation						
Predictor Variables				**20.2%**		
Intrinsic Motivation	1.69	.51	.23**			
Extrinsic Motivation	-.63	.64	-.07			
Amotivation	-2.94	.42	-.41**			
Emotion-Focused Coping	-1.36	1.03	-.07			
Interaction Term:					**20.3%**	**.1%**
Emotion-Focused*Extrinsic Motivation	-.56	.99	-.03			
Analysis #3: Amotivation						
Predictor Variables				**20.2%**		
Intrinsic Motivation	1.74	.51	.24**			
Extrinsic Motivation	-.68	.63	-.08			
Amotivation	-3.11	.42	-.44**			
Emotion-Focused Coping	-1.58	1.02	-.09			
Interaction Term:					**21.7%**	**1.5%**
Emotion-Focused*Amotivation	1.60	.71	.13*			

***p < .01; *p < .05*

Table 15

Multiple Linear Regression Analyses

Academic Adjustment with Avoidant Coping as Moderating Variable (n = 273)

	B	SEB	β	R^2	*Interaction* R^2	Δr^2
Analysis #1: Intrinsic Motivation						
Predictor Variables				**25.0%**		
Intrinsic Motivation	1.65	.49	.23**			
Extrinsic Motivation	-.36	.62	-.04			
Amotivation	-2.64	.41	-.37**			
Avoidant Coping	-3.67	.88	-.23**			
Interaction Term:					**25.0%**	**0%**
Avoidant *Intrinsic Motivation	-.38	.65	-.03			
Analysis #2: Extrinsic Motivation						
Predictor Variables				**25.0%**		
Intrinsic Motivation	1.67	.49	.23**			
Extrinsic Motivation	-.45	.62	-.05			
Amotivation	-2.67	.41	-.37**			
Avoidant Coping	-3.59	.87	-.23**			
Interaction Term:					**25.6%**	**.6%**
Avoidant*Extrinsic Motivation	-1.16	.77	-.08			
Analysis #3: Amotivation						
Predictor Variables				**25.0%**		
Intrinsic Motivation	1.60	.49	.22**			
Extrinsic Motivation	-.35	.61	-.04			
Amotivation	-2.74	.41	-.38**			
Avoidant Coping	-4.02	.87	-.25**			
Interaction Term:					**26.3%**	**1.3%**
Avoidant*Amotivation	1.16	.53	.12*			

***p < .01; *p < .05*

CHAPTER 5

Discussion

The primary goal of this study was to better understand the individual factors that affect academic adjustment in college students. Academic adjustment refers to students' success in coping with the educational demands of college. College attendance continues to be on the rise, making this a significant population to study. A positive link has been established in the literature between one's motivational orientation and overall college adjustment, including academic and personal/emotional adjustment. Educational benefits shown by autonomously-motivated students include higher academic achievement (Miserandino, 1996), higher perceived competence (Ryan & Grolnick, 1986), more positive emotionality (Ryan & Connell, 1989), and higher rates of retention (Vallerand & Bissonette, 1992). However, correlations between motivation (self-determination) and academic adjustment are low to moderate, suggesting that there are other factors playing a role in this relationship. The main focus of this study was to magnify the area of self by examining five intrapersonal factors (alcohol use, procrastination, perfectionism, perceived level of stress and coping style), in addition to academic motivation, to see how these factors may influence academic adjustment. The goal was to examine both their combined and unique contributions.

It was expected that students' levels of academic motivation would be positively correlated with academic adjustment in college students, as well as that the intrapersonal variables mentioned above would explain a statistically significant amount of variance in academic adjustment. Furthermore, it was hypothesized that there would be a significant additive contribution of the various risk and protective factors (intrapersonal variables) in explaining variance in academic adjustment above and beyond academic motivation (self-

determination), and that the relation between academic motivation and academic adjustment would be moderated by these predictor variables.

Overall, each hypothesis was supported to some degree, with certain variables having stronger contributions than others. The most noteworthy theme was that the combined contributions of the intrapersonal factors explained the greatest amount of variance in academic adjustment than any one factor alone. Another key theme was that lower academic motivation was associated with greater susceptibility to various risk factors at the intrapersonal level.

Academic motivation was indeed correlated with academic adjustment for this sample, and in the expected direction. For example, those students who had higher scores on the intrinsic and extrinsic motivation subscales also received higher scores for academic adjustment. Conversely, those students who endorsed greater amotivation (indicating a low level of academic motivation) also scored lower on academic adjustment, suggesting that these students are coping less successfully with the educational demands of college. When their combined contributions were examined, the intrapersonal variables (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) explained a significant proportion of variance in academic adjustment, indicating that these characteristics have a direct effect on students' ability to deal with the stress and demands of college. The factors that were the greatest contributors in explaining this variance included procrastination, perfectionism (both adaptive and maladaptive), and avoidant coping.

Furthermore, when the intrapersonal variables were assessed together with academic motivation, an even greater amount of variance was explained in academic adjustment for this sample. Lastly, assessment for any moderation effects of the intrapersonal variables on the relationship between academic motivation and academic adjustment revealed mixed results.

More specifically, there were no moderation effects found on intrinsic or extrinsic motivation for any of the intrapersonal factors. However, there was a moderation effect detected for amotivation for the following variables: procrastination, both adaptive and maladaptive perfectionism, perceived stress, emotion-focused coping, and avoidant coping. To follow is a discussion of the analysis of each research question.

Research Question 1: How strongly is academic motivation (self-determination) correlated with academic adjustment in this sample?

H_1: Academic motivation (self-determination) will be correlated with academic adjustment.

The finding that higher levels of academic motivation (intrinsic and extrinsic) are positively correlated with students' greater academic adjustment in this sample was not surprising, and is in line with prior research (e.g.,Vallerand et al. 1993; Sénécal et al., 1995). Also in line with previous findings in the literature was that students with low academic motivation scored significantly lower on academic adjustment in the current sample, indicating weaker coping with the educational demands of college.

The college experience comes with a range of demands and stressors. As previously discussed, self-determination theory involves three "basic psychological needs" identified by Ryan and Deci (2002), (competence, autonomy, and relatedness), that when met have been shown to strengthen self-motivation and mental health. Competence refers to feeling effective and confident in the action or activity. Autonomy refers to the individual feeling they are the source of their own behavior, that he/she is doing the action or activity because he/she wants to. And relatedness refers to feeling connected to others, as well as supported by others. It makes sense that if these needs have been thwarted, resulting in decreased motivation, one's academic

adjustment will suffer. Students' levels of motivation are closely tied to their academic performance (i.e., grade point average, persistence), as the personal importance of doing well is translated into both the amount of effort put in and the quality of the work.

Research Question 2: How well do intrapersonal factors (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) explain a statistically significant proportion of variance in academic adjustment? Specifically, do students who consume alcohol, procrastinate, are perfectionists (maladaptive), perceive high stress, and have an avoidant coping style experience less successful academic adjustment?

H_2: The intrapersonal factors (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) will explain a statistically significant proportion of variance in academic adjustment.

This research question was designed to explore whether the selected intrapersonal variables would explain variance in academic adjustment. It is well known within behavioral research that a multitude of factors, both at the individual and environmental level, play a role in students' academic performance. The intrapersonal factors examined in the current study (alcohol use, procrastination, perfectionism, perceived stress, and coping style) have been considered in prior research, both individually and in combination with other factors, and have been shown in the literature to be most consistently associated with academic achievement outcomes. Additionally, taking into account the age group that is being studied, it is common for individuals in the stage of emerging adulthood to be confronted with many of these factors during this developmental period. Because this period is considered to be the age of identity exploration and instability, it is not unusual for an individual to exercise one's choice, for

example, to experiment with alcohol or procrastinate on completing an academically related task. Furthermore, it is during this developmental period that individuals are exposed to a greater variety of experiences and situations in which intrapersonal characteristics, such as perfectionism, style of coping, and how one perceives stress, are reinforced within the individual.

When their combined contributions were examined, the intrapersonal variables (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) explained a significant proportion of variance (35%) in academic adjustment, indicating that these characteristics have a direct affect on students' ability to deal with the stress and demands of college. This is consistent with prior research (Van Eerde, 2003; Stoeber & Otto, 2006; Rice & Slaney, 2002; Aspinwall & Taylor, 1992), and validates the conception that factors at the individual level play a critical role in college student academic adjustment.

In examining the amount of variance explained more closely, the individual factors that explained the greatest amount variance in this sample included procrastination, perfectionism (both adaptive and maladaptive), and avoidant coping. These factors have been extensively studied in the literature and have been linked to a variety of academic outcomes. It makes sense that if an individual is exhibiting a negative behavior (i.e., procrastinating on a task, being overly critical of oneself, and/or not coping effectively), his/her academic performance will be directly negatively affected. It is important to be able to identify the impact of these behaviors in college students early in their academic careers so as to have a chance at improving or even eliminating these habits. On the other hand, the finding that adaptive perfectionism was associated with higher academic adjustment supports the notion that adaptive perfectionism does have academic benefits, as shown previously by Rice & Mirzadeh (2000). Lastly, the fact that alcohol use, perceived stress, and both problem-focused and emotion-focused coping did not contribute

significantly to the overall variance was somewhat surprising and is different than what prior research has shown. For example, Perkins (2002) found alcohol use to be associated with poor academic performance, Gall et al. (2000) identified perceived stress to be an important factor in college student adjustment, and Aspinwall & Taylor (1992) demonstrated that the greater use of active coping strategies (problem-focused and emotion-focused) and the nonuse of avoidance coping have been associated with positive college adjustment and performance.

Research Question 3: What is the additive contribution of various risk and protective factors (intrapersonal factors) in explaining variance in academic adjustment above and beyond academic motivation (self-determination)?

H_3: There will be a significant additive contribution of various risk and protective factors (intrapersonal factors) in explaining variance in academic adjustment above and beyond academic motivation (self-determination).

It is important to consider individuals in a comprehensive manner when studying human behavior. When the intrapersonal variables were assessed together with academic motivation, an even greater amount of variance (42%) was explained in academic adjustment for this sample. This confirms that a variety of factors play a role in student academic outcomes. As expected, the variables that were hypothesized to be risk factors (amotivation, procrastination, maladaptive perfectionism, and avoidant coping) were in fact shown to negatively impact academic adjustment in this sample. It makes sense that those students who display negative behaviors, such as procrastinating on academic tasks, overly criticizing themselves (maladaptive perfectionism), and coping ineffectively, will be more likely to have their academic performance negatively effected as a result. This finding is consistent with prior research (as discussed in

research question 2 above) and reinforces once again the importance of being able to identify these risk factors in college students for the purposes of intervention.

As previously discussed in research question 2, some of the intrapersonal variables that were hypothesized to explain variance in academic adjustment did not contribute significantly to the variance explained in this sample. These variables included alcohol use, perceived level of stress, and active coping style. These findings were not consistent with prior research, as was discussed in research question 2 above. In considering a possible explanation as to why this was the outcome in this sample, it may have been the case that student status played a role, with the majority of the sample (73%) being either juniors, seniors, or graduate students. More specifically, those students further along in their academic careers, compared to those just starting out (freshman and sophomores), may have been better adjusted overall, and as a result were not strongly impacted by these particular intrapersonal factors.

Research Question 4: Do the intrapersonal factors (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) moderate the relations between academic motivation (self-determination) and academic adjustment?

H_4: The intrapersonal factors (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) will moderate the relations between academic motivation (self-determination) and academic adjustment.

Tests of these moderation effects revealed mixed results. More specifically, there were no moderation effects found for intrinsic or extrinsic motivation for any of the intrapersonal factors. This finding is interesting in that it may suggest that those students who exhibit greater motivation are less likely to be affected by the proposed risk factors (alcohol use, procrastination, maladaptive perfectionism, higher level of perceived stress, and avoidant coping). In other

words, a higher level of motivation may act as a protective factor against some of the typical college student behaviors, such as excessive drinking, procrastinating, etc.

There was, however, a moderation effect detected for amotivation for the following variables: procrastination, both adaptive and maladaptive perfectionism, perceived level of stress, emotion-focused coping, and avoidant coping. In each of these analyses, the interaction among these factors and amotivation explained greater variance in academic adjustment than both amotivation and the intrapersonal variable of interest alone. These findings are of interest because they suggest that if students' levels of motivation are low, they may be more susceptible to the risk factors associated with the demands and stressors that come with being a college student. More specifically, these behaviors will likely have a greater negative impact on those students who are less motivated than those with higher levels of motivation. This finding demonstrates support for the importance of assessing academic motivation in college students. Identifying those students who may be at greater risk for negative academic outcomes could potentially help colleges/universities intervene before the end result is a negative one (i.e., low gpa, dropping out).

Limitations and Directions for Future Research

There are several limitations of this study that should be recognized. This study only considered intrapersonal variables in the assessment of academic adjustment in college students. There are a multitude of other factors that play a role in students' academic success, both at the personal and contextual levels. For example, when examining motivation, it is established within self-determination theory that the environment has a strong impact on the development of one's self-determination (i.e., parents being more autonomy supportive versus controlling). Another well-known factor is peer influence. Peer influence has been linked to a variety of

outcomes in college students, especially in relation to risk taking behaviors such as drinking. Although it was not found in the current study, the negative effects of alcohol use on college student academic outcomes is widely represented in the literature (e.g., Singleton & Wolfson, 2009). Future research on academic adjustment should consider the individual more comprehensively by examining both intrapersonal and environmental factors as potential contributors.

Another limitation of this study is that the majority of the sample consisted of female students, and students who were further along in their academic careers (juniors, seniors, and graduate students). In regard to gender, it may be beneficial for future research to consider any potential gender differences so as to gain a better understanding of how these factors influence academic adjustment in males versus females. As for student status, future research on academic adjustment may benefit from sampling students who are still early on their academic careers (freshman and sophomores) in order to capture those students who may be at greater risk.

Lastly, although the current sample was fairly diverse, it may be of interest to repeat this study specifically for those ethnicities that were underrepresented in the current sample, including those of an Asian/pacific islander, and Hispanic background, in order to examine and cultural differences.

Conclusions

Despite the limitations identified above, the findings of the current study significantly contribute to the body of existing research on academic adjustment. These findings are not only consistent with prior research, but also add more information into the nature of academic motivation in college students as it relates to their academic adjustment. There are several points to be taken from this study. First, understanding the intrapersonal factors that play a role in

students' academic adjustment is important because the self is critical to academic success. The factors that contributed most significantly in explaining the variance in academic adjustment for this sample included procrastination, perfectionism (both adaptive and maladaptive), and avoidant coping. Secondly, examining how certain behavioral characteristics influence the relation between level of motivation and academic adjustment is important in that intervention may be possible with those students who are at greater risk. In the current study, a moderation effect was detected for amotivation with the following variables: procrastination, both adaptive and maladaptive perfectionism, perceived stress, and emotion-focused coping. These findings aided in the explanation of a greater amount of variance in academic adjustment.

Examining levels of motivation in college students as it relates to their academic adjustment would be useful for both colleges and students. In regard to colleges, assessment may help with the decreasing of drop out rates, as well as identifying which students are at greater risk and allow for intervention. As for the benefit to students, understanding the personal factors that may be affecting their academic performance will provide insight as to which intrapersonal characteristics may be an area for improvement. For example, if procrastination identified as a problem, those students can have the opportunity to seek counseling for better time management, or to understand the underlying reason for the procrastinating behavior.

Overall, college students are a significant population to study. College attendance has steadily risen over the years and continues to do so. How well students are adjusting academically is of importance, both at the personal and university level.

APPENDIX A

HIC Approval

WAYNE STATE UNIVERSITY

IRB Administration Office
87 East Canfield, Second Floor
Detroit, Michigan 48201
Phone: (313) 577-1628
FAX: (313) 993-7122
http://irb.wayne.edu

CONCURRENCE OF EXEMPTION

To: Sonja Montgomery
College of Education

From: Dr. Scott Millis
Chairperson, Behavioral Institutional Review Board (B3)

Date: November 09, 2012

RE: IRB #: 106512B3X
Protocol Title: Dealing with the Demands of College
Sponsor:
Protocol #: 1210011400

The above-referenced protocol has been reviewed and found to qualify for **Exemption** according to paragraph #2 of the Department of Health and Human Services Code of Federal Regulations [45 CFR 46.101(b)].

- Revised Protocol Summary Form (received in the IRB Office 11/9/12)
- Protocol (received in the IRB Office 10/12/12)
- The request for a waiver of the requirement for written documentation of informed consent has been granted according to 45 CFR 46.117(1)(2). Justification for this request has been provided by the PI in the Protocol Summary Form. The waiver satisfies the following criteria: (i) The only record linking the participant and the research would be the consent document, (ii) the principal risk would be potential harm resulting from a breach of confidentiality, (iii) each participant will be asked whether he or she wants documentation linking the participant with the research, and the participant's wishes will govern, (iv) the consent process is appropriate, (v) when used requested by the participants consent documentation will be appropriate, (vi) the research is not subject to FDA regulations, and (vii) an information sheet disclosing the required and appropriate additional elements of consent disclosure will be provided to participants not requesting documentation of consent.
- Research Information Sheet (dated 11/9/12)
- Data collection tools: Demographic Survey, Academic Motivation Scale (AMS-C 28), AUDIT, Academic Procrastination Scale, Almost Perfect Scale-Revised, PSS-4, Brief COPE, and Student Adaptation to College Questionnaire (SACQ)

This proposal has not been evaluated for scientific merit, except to weigh the risk to the human subjects in relation to the potential benefits.

- Exempt protocols do not require annual review by the IRB.
- All changes or amendments to the above-referenced protocol require review and approval by the IRB **BEFORE** implementation.
- Adverse Reactions/Unexpected Events (AR/UE) must be submitted on the appropriate form within the timeframe specified in the IRB Administration Office Policy (http://irb.wayne.edu/policies-human-research.php).

WAYNE STATE UNIVERSITY

IRB Administration Office
87 East Canfield, Second Floor
Detroit, Michigan 48201
Phone: (313) 577-1628
FAX: (313) 993-7122
http://irb.wayne.edu

NOTICE OF EXPEDITED AMENDMENT APPROVAL

To: Sonja Montgomery
College of Education

From: Dr. Scott Millis
Chairperson, Behavioral Institutional Review Board (B3)

Date: December 07, 2012

RE: IRB #: 106512B3X
Protocol Title: Dealing with the Demands of College
Funding Source:
Protocol #: 1210011400

Expiration Date:

The above-referenced protocol amendment, as itemized below, was reviewed by the Chairperson/designee of the Wayne State University Institutional Review Board (B3) and is APPROVED effective immediately.

- Protocol – Addition of WSU Student Center as a study site (receipt of letter of support dated 11/21/12).
- Information Sheet (dated 12/3/12) – Addition of Information Sheet for WSU Student Center participants as compensation differs from classroom participants. An information sheet is being used in lieu of written consent as the only link between the participants and this study would be a signed consent.

APPENDIX B

Research Information Sheets

Dealing with the Demands of College

Research Information Sheet
Title of Study: *Dealing with the Demands of College*
Principal Investigator (PI): *Sonja Montgomery*
Department of Education
(248) 245-1289

Purpose:
You are being asked to be in a research study of personal experiences related to dealing with the educational demands of college because you are a college student. This study is being conducted at Wayne State University.

Study Procedures:
If you take part in the study, you will be asked to answer questions in a paper and pencil questionnaire format. All of the questions you will be asked have to do with your thoughts, perceptions, and experiences about such topics as procrastination, personal choices, and motivation. The questionnaire will take no longer than 20 minutes to complete. There will be no consequences if you do not wish to participate in this study. If you choose to participate your responses will remain anonymous.

Benefits:
As a participant in this research study, there will be no direct benefit for you; however, information from this study may benefit other people now or in the future.

Risks:
There are no known risks at this time to participation in this study.

Costs:
There will be no costs to you for participation in this research study.

Compensation:
You will not be paid for taking part in this study. However, those who participate will have the opportunity to take part in a random drawing for a cash reward of up to $25.

Confidentiality:
All information collected about you during the course of this study will be kept without any identifiers.

Voluntary Participation /Withdrawal:
Taking part in this study is voluntary. You are free to not answer any questions or withdraw at any time. Your decision will not change any present or future relationships with Wayne State University or its affiliates.

Questions:
If you have any questions about this study now or in the future, you may contact Sonja Montgomery or one of her research team members at the following phone number (248)245-1289. If you have questions or concerns about your rights as a research participant, the Chair of the Human Investigation Committee can be contacted at (313) 577-1628. If you are unable to contact the research staff, or if you want to talk to someone other than the research staff, you may also call (313) 577-1628 to ask questions or voice concerns or complaints.

Participation:
By completing the questionnaire you are agreeing to participate in this study.

Dealing with the Demands of College

Research Information Sheet

Title of Study: *Dealing with the Demands of College*
Principal Investigator (PI): *Sonja Montgomery*
Department of Education
(248) 245-1289

Purpose:
You are being asked to be in a research study of personal experiences related to dealing with the educational demands of college because you are a college student. This study is being conducted at Wayne State University.

Study Procedures:
If you take part in the study, you will be asked to answer questions in a paper and pencil questionnaire format. All of the questions you will be asked have to do with your thoughts, perceptions, and experiences about such topics as procrastination, personal choices, and motivation. The questionnaire will take no longer than 20 minutes to complete. There will be no consequences if you do not wish to participate in this study. If you choose to participate your responses will remain anonymous.

Benefits:
As a participant in this research study, there will be no direct benefit for you; however, information from this study may benefit other people now or in the future.

Risks:
There are no known risks at this time to participation in this study.

Costs:
There will be no costs to you for participation in this research study.

Compensation:
For taking part in this research study, you will receive a $5 gift card for your time and inconvenience. You may choose the type of gift card from the following options: Barnes & Noble, Subway, or Starbucks.

Confidentiality:
All information collected about you during the course of this study will be kept without any identifiers.

Voluntary Participation /Withdrawal:
Taking part in this study is voluntary. You are free to not answer any questions or withdraw at any time. Your decision will not change any present or future relationships with Wayne State University or its affiliates.

Questions:
If you have any questions about this study now or in the future, you may contact Sonja Montgomery or one of her research team members at the following phone number (248) 245-1289. If you have questions or concerns about your rights as a research participant, the Chair of the Human Investigation Committee can be contacted at (313) 577-1628. If you are unable to contact the research staff, or if you want to talk to someone other than the research staff, you may also call (313) 577-1628 to ask questions or voice concerns or complaints.

Participation:
By completing the questionnaire you are agreeing to participate in this study.

APPENDIX C

Correspondence

Angela Ortiz <aortiz@wpspublish.com> Wed, Sep 12, 2012 at 5:50 PM
To: Sonja Montgomery <af1336@wayne.edu>
Cc: Susan Weinberg <sweinberg@wpspublish.com>, Fred Dinkins <fdinkins@wpspublish.com>

Dear Sonja—

This reply serves as your permission from Western Psychological Services to reprint the attached sample of the STUDENT TO COLLEGE ADAPTATION QUESTIONNAIRE (SACQ), for the requested IRB purpose only, and not for application in administration or any other use in whole or in part, on provision that the reprint bear the following notice:

"Sample SACQ research form copyright © 1989 by Western Psychological Services. Reprinted by S. Montgomery, Wayne State University, for the sole purpose of internal scholarly review. Not to be reprinted in whole or in part for any other purpose without the prior, written authorization of WPS, 625 Alaska Avenue, Torrance, CA 90503 (rights@wpspublish.com)."

I look forward to hearing from you after the review process.

Sincerely,

Angela

-----Original Message-----
From: Sonja Montgomery [mailto:af1336@wayne.edu]
Sent: Wednesday, September 12, 2012 9:48 AM
To: rights
Subject: Sample for SACQ for IRB approval

Hi Angela,

Per our discussion today I am emailing to request a sample questionnaire of the SACQ to include in my submission for IRB approval.

Thank you for taking the time to answer my questions.

Sincerely,

Sonja Montgomery
PhD Candidate
Wayne State University
(248)245-1289

APPENDIX D

Instruments

DEMOGRAPHIC SURVEY

1. **What is your student status? (Please check ONE)**

   ____Freshman ____Junior

   ____Sophomore ____Senior

   ____Other: _____

2. **What is your age? _____**

3. **What is your gender? (Please check ONE)**

   ____Male ____Female

4. **What is your race/ethnicity? (Please check ONE)**

   ____African American/Black ____Hispanic

   ____Asian/Pacific Islander ____Middle Eastern

   ____Caucasian/White ____Hindu

   ____Other: _____

5. **What was your HIGH SCHOOL grade point average (GPA)? _____**

   (If your high school did NOT use the GPA system, please specify the system and your standing: _____)

6. **What is your CURRENT grade point average (GPA)? _____**

7. **Which of the following grades did you most typically receive in HIGH SCHOOL?**

   ____Mostly A's ____Mostly C's

   ____ Mostly A's and B's ____ Mostly C's and D's

   ____Mostly B's ____Mostly D's

   ____ Mostly B's and C's ____ Mostly D's and E's/F's

8. **How many credits are you currently taking? (Please check ONE)**

   ____1 – 6 ____12 - 18

   ____7 – 11 ____Over 18

9. How many hours per week do you work? (Please check ONE)

____Not currently working ____21-30 hrs/week

____1-10 hrs/week ____31-40 hrs/week

____11-20 hrs/week ____Over 40 hrs/week

10. What is your place of residence? (Please check ONE)

____On-campus (Dorm or Apt) ____With parent(s)

____Off-campus apartment ____With spouse/partner

____Own Home ____Other: _____

11. Is English your native language?

____ Yes ____No

If not, please list your native language: _____

12. Are you the first in your immediate family to go to college?

____Yes, I am the first

____ No, my sibling(s) went/are going to college

____ No, one or both of my parents went to college

13. Did either your mother or father earn a college degree?

____ Yes ____No

14. Is your family supportive of you being in college?

____ Yes, they support my decision to go to college

____ No, they don't understand why I am in college

____ I don't think it matters to them one way or the other

15. What % of your friends from HIGH SCHOOL continued on to college? (Please circle)

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

16. What percentage of your CURRENT friends go to college? (Please circle)

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

17. Are your CURRENT friends supportive of you being in college?

____ Yes, they support my decision to go to college

____ No, they don't understand why I am in college

____ I don't think it matters to them one way or the other

18. Are you currently or have you ever been involved in any learning communities (study groups for subjects such as Chemistry, Math, Biology, etc.) on campus?

____ Yes ____No

If yes, please list: _____

Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1989)

Sample Items and Instructions from the SACQ

Read each question and decide how well it applies to you at the present time. For each statement, circle the asterisk at the point in the continuum that best represents how closely the statement applies to you. Circle only one asterisk for each statement.

Academic Adjustment Subscale
41. I am not doing well enough academically for the amount of work I put in.
50. I am enjoying my academic work at college.

ACADEMIC MOTIVATION SCALE (AMS-C 28) - COLLEGE (CEGEP) VERSION

Using the scale below, indicate to what extent each of the following items presently corresponds to one of the reasons why you go to college (CEGEP).

Does not correspond at all		Corresponds a little		Corresponds moderately		Corresponds a lot		Corresponds exactly
1	2		3	4	5		6	7

WHY DO YOU GO TO COLLEGE (CEGEP) ?

1. Because with only a high-school degree I would not find a high-paying job later on.	1	2	3	4	5	6	7
2. Because I experience pleasure and satisfaction while learning new things.	1	2	3	4	5	6	7
3. Because I think that a college (CEGEP) education will help me better prepare for the career I have chosen.	1	2	3	4	5	6	7
4. For the intense feelings I experience when I am communicating my own ideas to others.	1	2	3	4	5	6	7
5. Honestly, I don't know; I really feel that I am wasting my time in school.	1	2	3	4	5	6	7
6. For the pleasure I experience while surpassing myself in my studies.	1	2	3	4	5	6	7
7. To prove to myself that I am capable of completing my college (CEGEP) degree.	1	2	3	4	5	6	7
8. In order to obtain a more prestigious job later on.	1	2	3	4	5	6	7
9. For the pleasure I experience when I discover new things never seen before.	1	2	3	4	5	6	7
10. Because eventually it will enable me to enter the job market in a field that I like.	1	2	3	4	5	6	7
11. For the pleasure that I experience when I read interesting authors.	1	2	3	4	5	6	7
12. I once had good reasons for going to college (CEGEP); however, now I wonder whether I should continue.	1	2	3	4	5	6	7
13. For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.	1	2	3	4	5	6	7
14. Because of the fact that when I succeed in college (CEGEP) I feel important.	1	2	3	4	5	6	7
15. Because I want to have "the good life" later on.	1	2	3	4	5	6	7

Does not correspond at all		Corresponds a little		Corresponds moderately		Corresponds a lot		Corresponds exactly
1	2	3	4	5	6	7		

WHY DO YOU GO TO COLLEGE (CEGEP) ?

16. For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.	1	2	3	4	5	6	7
17. Because this will help me make a better choice regarding my career orientation.	1	2	3	4	5	6	7
18. For the pleasure that I experience when I feel completely absorbed by what certain authors have written.	1	2	3	4	5	6	7
19. I can't see why I go to college (CEGEP) and frankly, I couldn't care less.	1	2	3	4	5	6	7
20. For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.	1	2	3	4	5	6	7
21. To show myself that I am an intelligent person.	1	2	3	4	5	6	7
22. In order to have a better salary later on.	1	2	3	4	5	6	7
23. Because my studies allow me to continue to learn about many things that interest me.	1	2	3	4	5	6	7
24. Because I believe that a few additional years of education will improve my competence as a worker.	1	2	3	4	5	6	7
25. For the "high" feeling that I experience while reading about various interesting subjects.	1	2	3	4	5	6	7
26. I don't know; I can't understand what I am doing in school.	1	2	3	4	5	6	7
27. Because college (CEGEP) allows me to experience a personal satisfaction in my quest for excellence in my studies.	1	2	3	4	5	6	7
28. Because I want to show myself that I can succeed in my studies.	1	2	3	4	5	6	7

AUDIT

Please check ONE box for your answer to each of the 10 questions

1. How often do you have a drink containing alcohol?

a. Never	b. Monthly or less	c. Two to four times a month	d. Two or three times a week	e. Four or more times a week

2. How many drinks containing alcohol do you have on a typical day when you are drinking?

a. 1 or 2	b. 3 or 4	c. 5 or 6	d. 7 to 9	e. 10 or more

3. How often do you have six or more drinks on one occasion?

a. Never	b. Less than monthly	c. Monthly	d. Weekly	e. Daily or almost daily

4. How often during the past year have you found that you were not able to stop drinking once you had started?

a. Never	b. Less than monthly	c. Monthly	d. Weekly	e. Daily or almost daily

5. How often during the past year have you failed to do what was normally expected of you because of drinking?

a. Never	b. Less than monthly	c. Monthly	d. Weekly	e. Daily or almost daily

6. How often during the past year have you needed a drink first thing in the morning to get yourself going after a heavy drinking session?

a. Never	b. Less than monthly	c. Monthly	d. Weekly	e. Daily or almost daily

7. How often during the past year have you had a feeling of guilt or remorse after drinking?

a. Never	b. Less than monthly	c. Monthly	d. Weekly	e. Daily or almost daily

8. How often during the past year have you been unable to remember what happened the night before because you had been drinking?

a. Never	b. Less than monthly	c. Monthly	d. Weekly	e. Daily or almost daily

9. Have you or someone else been injured as a result of your drinking?

a. No	b. Yes, but not in the last year	c. Yes, during the past year

10. Has a relative or friend or a doctor or other health worker been concerned about your drinking or suggested you cut down?

a. No	b. Yes, but not in the last year	c. Yes, during the past year

Almost Perfect Scale-Revised

Instructions

The following items are designed to measure attitudes people have toward themselves, their performance, and toward others. There are no right or wrong answers. Please respond to all of the items. Use your first impression and do not spend too much time on individual items in responding. Respond to each of the items using the scale below to describe your degree of agreement with each item. Fill in the appropriate number in the space provided next to each item.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

1. _____ I have high standards for my performance at work or at school.
2. _____ I am an orderly person.
3. _____ I often feel frustrated because I can't meet my goals.
4. _____ Neatness is important to me.
5. _____ If you don't expect much out of yourself, you will never succeed.
6. _____ My best just never seems to be good enough for me.
7. _____ I think things should be put away in their place
8. _____ I have high expectations for myself.
9. _____ I rarely live up to my high standards.
10. _____ I like to always be organized and disciplined.
11. _____ Doing my best never seems to be enough.
12. _____ I set very high standards for myself.
13. _____ I am never satisfied with my accomplishments.
14. _____ I expect the best from myself.
15. _____ I often worry about not measuring up to my own expectations.
16. _____ My performance rarely measures up to my standards.
17. _____ I am not satisfied even when I know I have done my best.
18. _____ I try to do my best at everything I do.
19. _____ I am seldom able to meet my own high standards of performance.
20. _____ I am hardly ever satisfied with my performance.
21. _____ I hardly ever feel that what I've done is good enough.
22. _____ I have a strong need to strive for excellence.
23. _____ I often feel disappointment after completing a task because I know I could have done better.

PSS-4

INSTRUCTIONS:

The questions in this scale ask you about your feelings and thoughts during THE LAST MONTH. In each case, please indicate your response by placing an "X" over the circle representing HOW OFTEN you felt or thought a certain way.

	Never	Almost Never	Sometimes	Fairly Often	Very Often
	0	1	2	3	4
1. In the last month, how often have you felt that you were unable to control the important things in your life?	○	○	○	○	○
2. In the last month, how often have you felt confident about your ability to handle your personal problems?	○	○	○	○	○
3. In the last month, how often have you felt that things were going your way?	○	○	○	○	○
4. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	○	○	○	○	○

Brief COPE

These items deal with the ways you've been coping with stress while in college. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with it. Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Use the response choices provided. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

---

1 = I haven't been doing this at all **2 = I've been doing this a little bit**

3 = I've been doing this a medium amount **4 = I've been doing this a lot**

1. ___ I've been turning to work or other activities to take my mind off things.
2. ___ I've been concentrating my efforts on doing something about the situation I'm in.
3. ___ I've been saying to myself "this isn't real".
4. ___ I've been using alcohol or other drugs to make myself feel better.
5. ___ I've been getting emotional support from others.
6. ___ I've been giving up trying to deal with it.
7. ___ I've been taking action to try to make the situation better.
8. ___ I've been refusing to believe that it has happened.
9. ___ I've been saying things to let my unpleasant feelings escape.
10. ___ I've been getting help and advice from other people.
11. ___ I've been using alcohol or other drugs to help me get through it.
12. ___ I've been trying to see it in a different light, to make it seem more possible.
13. ___ I've been criticizing myself.
14. ___ I've been trying to come up with a strategy about what to do.
15. ___ I've been getting comfort and understanding from someone.
16. ___ I've been giving up the attempt to cope.
17. ___ I've been looking for something good in what is happening.
18. ___ I've been making jokes about it.
19. ___ I've been doing something to think about it less, such as going to the movies, watching TV, reading, daydreaming, sleeping, or shopping.
20. ___ I've been accepting the reality of the fact that it has happened.
21. ___ I've been expressing my negative feelings.
22. ___ I've been trying to find comfort in my religion or spiritual beliefs.
23. ___ I've been trying to get advice or help from other people about what to do.
24. ___ I've been learning to live with it.
25. ___ I've been thinking hard about what steps to take.
26. ___ I've been blaming myself for things that happened.
27. ___ I've been praying or meditating.
28. ___ I've been making fun of the situation.

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ABSTRACT

INTRAPERSONAL VARIABLES ASSOCIATED WITH ACADEMIC ADJUSTMENT IN COLLEGE STUDENTS

by

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In this study, academic adjustment in college students was examined, which refers to students' success in coping with the educational demands of the college experience. With college attendance on the rise, it is important to explain the variance in successful academic adjustment. Individual factors have been studied one or two at a time or in combination with other interpersonal/external factors. The purpose of this study was to magnify the area of self by considering a variety of intrapersonal factors to examine how these factors may influence academic achievement. These factors included academic motivation (self-determination), alcohol use, procrastination, perfectionism, perceived stress, and coping style. The goal was to examine both their combined and unique contributions. The participants in this study were 273 college students (75 males and 198 females) between the ages of 18-25. Academic motivation was found to be correlated with academic adjustment in this sample, and in the expected direction. For example, those students who had higher scores on the intrinsic and extrinsic motivation subscales also received higher scores for academic adjustment. Conversely, those students who endorsed items on the amotivation subscale (indicating a lower level of academic motivation) also scored lower on academic adjustment, suggesting that these students are coping

less successfully with the educational demands of college. When their combined contributions were examined, the intrapersonal variables (alcohol use, procrastination, perfectionism, perceived level of stress, and coping style) explained a significant proportion of variance in academic adjustment, indicating that these characteristics have a direct effect on students' ability to deal with the stress and demands of college. The factors that were the greatest contributors in explaining this variance included procrastination, perfectionism (both adaptive and maladaptive), and avoidant coping. Furthermore, when the intrapersonal variables were assessed together with academic motivation, an even greater amount of variance was explained in academic adjustment for this sample. Lastly, assessment for any moderation effects of the intrapersonal variables on the relationship between academic motivation and academic adjustment revealed mixed results. More specifically, there were no moderation effects found on intrinsic or extrinsic motivation for any of the intrapersonal factors. However, there was a moderation effect detected for amotivation for the following variables: procrastination, both adaptive and maladaptive perfectionism, perceived stress, and emotion-focused coping.

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EDUCATION

2013 Doctor of Philosophy (PhD), Wayne State University – Detroit, MI
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RESEARCH EXPERIENCE

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PROFESSIONAL EXPERIENCE

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